

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1631.—VOL. XXXVI.

LONDON, SATURDAY, NOVEMBER 24, 1866.

{STAMPEDSIXPENCE.
{UNSTAMPED...FIVEPENCE.

Mining Exchange, London.

MINING EXCHANGE, LONDON.—As the rules of the Mining Exchange PROHIBIT all its MEMBERS from ADVERTISING MINING SHARES at FIXED PRICES, the Committee feel it their duty to notify that they have no means of offering redress to such of the public as may deal with those advertising shares at fixed prices.

MR. JAMES CROFTS, STOCK AND SHAREBROKER,
No. 1, FINCH LANE, CORNHILL.
(Established 23 years.)

PRINCE OF WALES.—Evidence of a great mine accumulate rapidly and distinctly, and consequently all opinions now point to a great success, as will be seen by reports in the present Journal. The shares have become the most prominent item of the market, for dealing, speculation, or investment, but at the present price they have not advanced to one-half their prospective value. Mr. CROFTS solicits orders for cash, and immediate delivery.

HOLDERS of mining shares DIFFICULT OF SALE in the OPEN MARKET may find purchasers for the same through Mr. CROFTS' agency. Also parties requiring ADVICE how to act in the DISPOSAL or ABANDONMENT of doubtful mining stocks may profitably avail of Mr. CROFTS' long experience on the market in all cases of doubt or difficulty, legal or otherwise.

* Mr. CROFTS is prepared to advise on purchases or sales of Chontales shares. Bankers: National Bank of Scotland, Finch-lane.

MR. WILLIAM LANE, No. 44, THREADNEEDLE STREET,
LONDON, E.C., STOCK AND SHAREDEALER, has FOR SALE the following SHARES:—

10 Bottle Hill, 4s.	55 East Grenville, £2 8 9	1 Minera, £160.
10 Chontales, £2.	10 East Russell, £3 4	35 North Crofty, £2 6 3
10 Clifford, £6 6	20 East Caradon, £5 5	50 North Downs, 5s.
10 Caradon Cons., £10.	10 East Lovell, £9 17 6d	50 No. Treskerby, £3 0 3
5 Carn Camborne, 26s.	40 Gt. Retallack, 10s.	50 New Birch Tor, 6s. 9d.
50 Gen. American, 12s 6d.	75 G. No. Laxey, 26s. 3d.	5 Providence, £22 4
50 Crebor, 18s.	20 Gothic, £2 4	20 Quebrada (£10 paid), 20s.
50 Chiverton, £8 4	100 Gwydyr Park, 1s. 6d.	50 South Darren, 35s.
10 Drake Walls, 9s. 6d.	5 Great Vor, £17.	5 South Crofty, £12 5
2 Devon Consols, £4 7 1	5 Great Wheal Fortune, 25s.	35 S. Condurow, 11s. 6d.
40 East del Rey, 3s.	4 Herodfoot, £21 1 4	25 W. Chiverton, 22s 6d
5 East Basset, £23 3 4	100 Mineral Rights, 6d.	25 W. Chiverton, 22s 6d
5 East Carn Brea, £2 3 4	15 Marke Valley, £3 17 6	5 W. Chiverton, 22s 6d

Clients and parties wishing to dispose of shares will find this advertisement a ready means of doing so, by forwarding me a list of their holding.

MR. LELEAN, ENGLISH AND FOREIGN STOCK AND SHAREDEALER,
11, ROYAL EXCHANGE, LONDON, E.C.
Bankers: Roberts, Lubbock, and Co., Lombard-street.

GUIDE TO INVESTORS.—MR. LELEAN'S STOCK, SHARE, AND FINANCE REGISTER for November contains the fourth of a series of articles on the whole circle of Investments—British and Foreign Stocks and Loans, Bank and Finance, Railway and Insurance, Gas and Water, and Manufacturing and Commercial Shares; with such other information as is necessary to guide intending investors amidst the shoals and quicksands of the multifarious species of investments that now present themselves; and a tabulated statement of the dividends paid during the last five years in British and American Railways. Published by Pott and Son, 14 and 15, Royal Exchange, London, E.C. Price 6d., or 1s. annually.

CARNARVONSHIRE CONSOLS (LIMITED), AND SHARES FULLY PAID.—MR. LELEAN recommends the immediate purchase of these shares, now quoted $\frac{1}{4}$ to $\frac{1}{2}$ prem.—11, Royal Exchange, E.C.

NOTICE OF REMOVAL.—MCNEILL and LONG have REMOVED from 7, Pope's Head-alley, Lombard-street, to 31, THREADNEEDLE STREET, LONDON, E.C.

MESSRS. WILSON, WARD, AND CO., STOCK AND SHAREDEALERS,
16, UNION COURT, OLD BROAD STREET, LONDON, E.C.
Can recommend two good mines for investment.

GEORGE RICE, SHAREDEALER, 78, OLD BROAD STREET, LONDON, E.C. (24 years' experience), Member of the Mining Exchange, DEALS IN MINING SHARES at close market prices of the day, either as BUYER or SELLER, for cash or account.

GEORGE RICE has during the past week visited several of the principal mines in Cornwall and Devon, and can furnish valuable and reliable information to speculators and shareholders, particularly as to the following mines:—

Caradon Consols.	East Russell.	Prince of Wales.
Chiverton.	East Caradon.	Trumpet Consols.
Chiverton Moor.	Great Vor.	West Caradon.
East Basset.	Great Fortune.	Wheal Chiverton.
East Grenville.	Marke Valley.	Wheal Grenville.
East Lovell.	North Treskerby.	Wheal Crebor.

Nov. 23, 1866. Money advanced on mining shares. Bankers: Bank of England.

CHONTALES GOLD MINES (LIMITED).—GEORGE RICE deals largely in these shares, as BUYER or SELLER, at close market prices, and being in possession of most important information as to the prospects of the mines and market, can well advise both speculators and holders of these shares when to sell or buy to their advantage.—Nov. 23, 1866.

GEORGE RICE recommends the purchase of **WHEAL CREBOR**, selling at 10s. per share, or £2000 for the mine. PRINCE OF WALES, in same district, is now selling for 25s. per share, or about £17,500 for the mine. GEORGE RICE recommends the purchase of **WHEAL GRENVILLE**, selling for £12 6d. per share, or £6750 for the entire mine. EAST LOVELL, a similar tin mine, now stands at £10 per share, or £19,000 for the mine.—Nov. 23, 1866.

MR. G. D. SANDY, STOCK AND SHAREDEALER,
No. 48, THREADNEEDLE STREET, LONDON, E.C. TRANSACTS BUSINESS IN EVERY DESCRIPTION OF STOCK EXCHANGE SECURITIES, MINING AND FINANCIAL ENTERPRISES, at close market prices.

BUYER of East Bottle Hill shares. Sellers state number and lowest price. Correct Daily Price List may be had on application. Money advanced to any amount on legitimate stocks and shares. References exchanged.

MR. G. D. SANDY'S MONTHLY INVESTMENT CIRCULAR.—SPECIAL NOTICE.—Vide all hitherto published. 48, Threadneedle-street, London, E.C., Nov. 23, 1866.

MR. EDWARD BREWIS is a BUYER or SELLER, for Cash or Account, or for dealings end of the Year 1866, end of March, June, or Sept., 1867, in the undermentioned MINES:—

Chiverton.	Chiverton Moor.	Westminster.
West Chiverton.	East Bottle Hill.	Chontales Gold.
South Condurow.	Prince of Wales.	West Caradon.
East Lovell.	Caldbeck Fells.	Clifford.
Frontino and Bolivia.	North Treskerby.	Great Vor.
Grenville.	East Grenville.	Dyffryn Castell.
North Crofty.	East Russell.	Carn Camborne.

WANTED, an OFFER for 10 Harwood, and 20 Cashwell shares. No. 8, Warrford-court, Bank, E.C.

FOR SALE, the following shares at net prices:—20 Great South Toigus, 15s.; 40 North Dolcoath, 4s. 6d.; 25 Prince of Wales, 25s.; 20 South Callington, 40s.; 10 North Treskerby, £23 4; 10 Westminster Lead, £5; 40 New Lovell, 7s.; 10 Rose and Chiverton United; 50 South Condurow, 12s. 6d.; 40 Wheal Crebor, 18s.; 10 West Caradon, £14; 15 East Carn Brea, £2 3 4; 20 Leeds and St. Aubyn.

Apply to Mr. R. EMERSON, 28, Great Winchester-street, London, E.C.

Advice given on the sale and purchase of shares.

Eighteen years' experience in Cornwall and twelve in London.

MR. GEORGE BUDGE, No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 18 years), has FOR SALE:—

40 Wheal Agar; 40 Frank Mills; 5 Grahmer; 100 Gwydyr Park; 3 Minera; 70 East Rosewarne; 25 South Darren; 100 Gochie; 55 Great North Downs; 50 Pen-tarn's Gold; 50 Quebrada; 200 Anglo-Brasilia; 50 Yudanamatana; 40 Don Pedro; 30 Grenville; 40 Great Retallack; 10 Caradon Consols; 100 Bottle Hill; 50 North Crofty; 10 East Carn Brea; 100 Mineral Rights; 10 East Russell; 50 Great South Toigus; 30 Crebor; 2 East Basset; 1 Devon Great Consols; 25 Prince of Wales; 1 Wheal Seton; 2 Providence; 5 St. John del Rey.

Parties desirous of purchasing any of the above shares will please state number and price.

CORNISH AND DEVON MINES:—PETER WATSON'S "WEEKLY CIRCULAR," No. 398, Vol. VIII., of yesterday (Friday, Nov. 23), price 6d. each copy, contains important information on the following mines:—

West Caradon.	East Providence.	North Treskerby.
East Lovell.	Wheal Chiverton.	Cook's Kitchen.
North Wheal Crofty.	Stray Park.	Grahmer & St. Aubyn.
Chiverton.	Dolcoath.	Great East Lovell.
	Trumpet Consols.	

With Special Remarks on Mining Shares as an Investment for Capital. 79, Old Broad-street, London, E.C.

THE LONDON DAILY RECORD—STOCK AND SHARE LIST.—MR. PETER WATSON begs to call particular attention to the fact that nearly all the afternoon or evening London newspapers contain the prices of stocks and shares up to about One o'clock only (on same day as published), instead of Four to Five o'clock. The difficulties which shareholders and the investing public have encountered in seeking for correct and latest daily prices induced him, three months ago, at the suggestion of several of his friends and customers, to publish every evening "The London Daily Record—Stock and Share List," which is ready at about Half-past Five o'clock, and delivered to subscribers in and around London the same evening. It is posted in time for the same evening's mail to country subscribers, who are thus enabled to get the latest prices some eight or ten hours earlier than they formerly had the means of doing. The importance of this at the present anxious moment must be obvious to all, as the daily fluctuations in prices of railway stocks, banks, financial, and other shares are sometimes very great.

It is his constant endeavour to convey the best and most reliable information (derived from authentic sources), and to give the latest actual marketable prices of buyers and sellers. Every person, therefore, interested in stocks and shares will find it to their interest to subscribe to the "London Daily Record—Stock and Share List." Those who desire to have it sent to them regularly every evening, will please sign the annexed form, and forward to Mr. PETER WATSON, 79, Old Broad-street, London, E.C.

Annual subscription, £1 1s.; by post, £2 5s. Monthly subscription, by post, 4s. Single copy, 1d.; by post, 2d.

THE LONDON DAILY RECORD—STOCK AND SHARE LIST.
Please put my name down as a subscriber to the above Daily List, and forward the same to me, for.....

Name.....
Address.....

* Here insert weeks or months.
To Mr. PETER WATSON, 79, Old Broad-street, London, E.C.

MR. EDWARD COOKE, STOCK AND SHAREDEALER,
76, OLD BROAD STREET, LONDON, E.C.
Has SPECIAL BUSINESS in Chontales, Prince of Wales, East Lovell, Frank Mills, South Darren, and West Caradon.

Shares either for cash or fortnightly settlements. Stock Exchange securities dealt in at close market prices. Satisfactory references given in any town in the United Kingdom. Bankers: Alliance Bank.

MR. C. A. POWELL, SHAREDEALER, 78, OLD BROAD STREET, LONDON, E.C., AND MINING EXCHANGE, LONDON.
In my advertisement last week respecting CALDBECK FELS, I regret that in error the amount £950 should have been put instead of £350. The actual figures being 67 tons, realising £884. 16s.
Nov. 23, 1866. Bankers: Bank of England.

JOHN RISLEY, 32, LOMBARD STREET, AND MINING EXCHANGE, LONDON, E.C., has SPECIAL BUSINESS in East Grenville, Wheal Buller, and West Caradon shares.

MESSRS. MCNEILL AND LONG, STOCK, SHARE, AND MINING DEALERS,
31, THREADNEEDLE STREET, LONDON, E.C.

MR. WILLIAM SEWARD, STOCK AND SHAREDEALER,
19, THROGMORTON STREET, LONDON, E.C.

MR. E. GOMPERTS, STOCK AND SHAREDEALER,
3, CROWN COURT, THREADNEEDLE STREET, LONDON.

MR. T. ROSEWARNE, 81, OLD BROAD STREET, LONDON, E.C., is a DEALER in the FOLLOWING SHARES, for cash or "time on":—

Devon Consols.	West Chiverton.	West Seton.
East Caradon.	West Caradon.	Wheal Seton.
Herodfoot.	Chontales.	Clifford.
Marke Valley.	Bryn Gwlog.	East Lovell.
South Caradon.	St. John del Rey.	Great North Downs.
Chiverton.	Caradon Consols.	Bank of New Zealand.
Gawton.	Union of London.	Union of Australia.
South Callington.	East Russell.	Canadian Loan and General Investment.
Wheal Crebor.	North Treskerby.	
Tincroft.	Wheal Buller.	
Bank of Victoria.	Bank of Australasia.	

PRINCE OF WALES.—I find they have cut another cross-course in the 45 east, which looks well for a course of ore to the east of the cross-course. I say to all my friends double your interest at the present price, 25s.

An OFFER WANTED for Okef Tor, New Trellawny, New Devon Consols, Lady Bertha, and Old Guntlake.

BUYER of New Tamar at 17s. 6d. Bankers: Bank of England, and Consolidated.

MR. JAMES HUME, 74, OLD BROAD STREET, LONDON, E.C. (Member of the Mining Exchange). Executes orders in mining shares at net prices, equivalent to 1 1/2 per cent. commission, and Stock Exchange securities at the usual charge. All communications punctually attended to, and cash sent on receipt of transfer. Bankers: The London Joint Stock Bank.

MR. JOHN BATTERS, STOCK AND MINING SHAREBROKER, 13, THROGMORTON STREET, LONDON, E.C.

MR. JOHN LITTLE, STOCK AND SHAREDEALER,
77, OLD BROAD STREET, LONDON, E.C. (late of Redruth). Immediate attention to orders by telegraph or letter. Prompt cash settlements.

WILLIAM MICHELL has FOR SALE the following

MINING SHARES:—

200 Chontales.	3 Buller.	15 Marke Valley.
50 Grenville.	100 East Grenville.	20 North Crofty.

"W. J." (Salop).—New Tamar is, I believe, contiguous to the once celebrated South Tamar and Tamar Consols, which, in their day, made very large profits; the latter was the deepest worked lead mine in Cornwall or Devon. I have seen some fine specimens of ore from the New Tamar, which is exceedingly rich in silver. It is in virgin ground, and I should look upon it as a more than average speculation. The price of shares is about 20s. each, at which you may, perhaps, be able to obtain a limited number.

"A Dupe" (Stratford)—W.—L. G.—No one would dream of giving away shares that he could sell at £11 1/4 or £12; but, as you say, had you done so at the time, you would have been just as well off as you have been to hold, as the calls made since are quite equal to the present market price. If you were induced to buy on the report in a particular article in the paper, all I can say is take care and not be bitten by the same dog again.

Apply to 42, Cornhill, London, E.C.

INVESTMENT, LOAN, AND BANK AGENCY.—Established 1839.

BANKERS.—London and County Bank.

This Agency undertakes the investment of Capital in British and Foreign Government Stocks and Joint-stock Companies upon advantageous terms.

It is notorious that market prices are in many instances ruled by the operations of speculators, and those who are interested in the maintenance of fictitious values; therefore, this Agency makes it a speciality to detach, as far as practicable, bona fide prices as separated from market prices, with the view to select sound securities, which upon reliable data may be appreciated as the most likely to speedily and substantially improve in value.

Every information afforded to Capitalists, Trustees, and others, who seek investments of a strictly safe and eligible character.

Loans granted on Stocks and Shares having a market value, interest allowed upon deposits, and every description of Bank and Money Agency business transacted.

CHARLES PETERS, Sec.
No. 12, Clement's-lane, Lombard-street, London, E.C.

SALE OF MINING SHARES BY PUBLIC AUCTION.

MR. CHARLES THOMAS WILL SELL, at the London Tavern, Bishopsgate-street, on Wednesday, the 28th of November, at One o'clock precisely, the FOLLOWING, with other SHARES:—

5 Buller.	4 Carn Brea.	2 Tresavean.
25 Great South Toigus.	30 South Darren.	60 West Kitto.
10 East Carn Brea.	20 Central Minera.	

Persons desirous of purchasing any of the above shares previously to the day of sale can, in most instances, do so on application to the auctioneer, with positive offer.

Particulars and conditions of sale may be had at the offices of the auctioneer, No. 3, Great St. Helens, London, E.C., and at the MINING JOURNAL office, 26, Fleet-street, London, E.C.

MR. CHARLES THOMAS is a BUYER of East Seton, West Wheal Kitty, West Godolphin.—No. 3, Great St. Helens, London.

MR. T. E. W. THOMAS, MINING AGENT AND GENERAL MINING SHAREDEALER, UNION CHAMBERS, UNION COURT, OLD BROAD STREET, LONDON, E.C.

MESSRS. LANE AND GIBBS, 2, ROYAL EXCHANGE, LONDON, E.C., STOCK AND SHAREDEALERS, AND FINANCIAL AGENTS, transact business in all kinds of securities at closest net prices for cash or account.

Parties of respectability can have transfers registered in their names previous to payment. Daily price list on application. Bankers: London and County Bank.

SAFE INVESTMENTS FOR CAPITAL,
Paying 10 to 20 per cent. per annum in dividends. SHAREHOLDERS, CAPITALISTS, AND INTENDING INVESTORS Should at all times consult

SHARP'S GENERAL INVESTMENT CIRCULAR (Gratis and post free). It is a SAFE RELIABLE GUIDE, containing valuable information. It also gives the market prices of stocks and shares of "every" description, the amount of dividends given in every undertaking and company, and when paid.

SPECIAL BUSINESS, at CLOSE MARKET PRICES, in the following:—
Prince of Wales. Wheal Crebor. Wheal Grenville.
Wheal Chiverton. Chiverton.
Chiverton Moor. North Crofty. Wheal Seton.
East Caradon. East Lovell. West Caradon.
East Basset. Wheal Buller. Great Vor.
Great Laxey. Chontales. St. John del Rey.

HENRY GOULD SHARP, 32, POULTRY, LONDON, E.C.
Bankers: London and Westminster, Lothbury, E.C.
EAST SETON MINE.—WANTED TO BUY, 10 shares.

MR. WILLIAM WARD, STOCK AND SHAREDEALER,
No. 29, THREADNEEDLE STREET, LONDON, E.C.

MATTHEW GREENE, STOCK AND SHAREDEALER,
ST. MICHAEL'S HOUSE, CORNHILL, LONDON, E.C.
MATTHEW GREENE is always prepared to deal at close net prices in every description of Stock Exchange securities.

NEW CLIFFORD, NEW TAMAR, and WESTMINSTER Mining Shares specially recommended. MATTHEW GREENE is a BUYER of any part of 200 NEW TAMAR at 18s. 9d. per share for cash. Bankers: Imperial Bank.

MESSRS. WARD AND JACKMAN, STOCK AND SHAREDEALERS,
CUSHION COURT, OLD BROAD STREET, CITY, E.C.
Closing prices, Friday, Nov. 23.

Buyers.	Sellers.	Buyers.	Sellers.
Chiverton	£ 8 - 2 8 1/4	North Treskerby	£ 2 3/4 - 2 3
Chiverton Moor	4 3/4 - 5	North Crofty	2 5/8 - 2 5/8
East Lovell	9 - 10	Prince of Wales	24s. - 26s.
East Caradon	5 1/2 - 6	* West Chiv. (ex div.) ..	57 1/4 - 60
Great Vor	16 - 17	West Caradon	14 - 15
Great Laxey	18 - 19	Stray Park	1 1/2 - 1 1/2
West Frances	6 - 7	Wheal Seton	14 1/2 - 15 1/2
* New Tamar	7 1/2 - 1 1/2	Trumpet Consols	10 - 11

Messrs. WARD and JACKMAN refer their friends to their remarks on p. 757 respecting those mines marked *.

All orders to buy or sell shares of every description promptly attended to, for cash or account. Bankers: London and Westminster, Lothbury.

MR. J. B. REYNOLDS, 70 and 71, BISHOPSGATE STREET WITHIN, LONDON, E.C.

Business transacted in British and Foreign Stocks, Railway, Bank, Insurance, Financial or Mining Companies Shares, and all Miscellaneous Securities, at the lowest market quotations. Exchanges effected, and purchasers found for shares not generally marketable.

Mr. REYNOLDS is prepared to deal for cash in:—
Westminster Mines. Gothic. Rose & Chiverton Utd.
Chontales Gold. Crebor. West Caradon.
Caradon Consols. Wheal Agar.

As well as all market mines.

Mr. REYNOLDS does not advertise shares at fixed prices, but is prepared, nevertheless, to deal on as favourable terms as those who do.—Nov. 23, 1866.

REYNOLDS'S CIRCULAR FOR NOVEMBER.—Applications for this will be received during the coming week, and all INVESTORS in BRITISH MINES and other stocks should procure a copy.

OPINIONS OF THE PRESS.
"The following extract is from the Investors' Guardian:—
"We have received a copy of 'Reynolds's Investment Circular,' which contains much information that is valuable to the investor. It contains references to the principal railways, banks, insurance, mining, and miscellaneous companies, and some interesting statistics concerning the past and present state of the metal market."

The above "Circular" will be forwarded gratis, on application to Mr. J. B. REYNOLDS, 70 and 71, Bishopsgate-street Within, London, E.C.
November 23, 1866.

BARTLETT AND CHAPMAN, STOCK AND SHAREDEALERS, 2, BUCKLESBURY, LONDON, E.C.

Business transacted in every description of stocks and shares at lowest prices, free of commission. CHEAP SPECULATIONS.

BARTLETT and CHAPMAN call the attention of capitalists to the following mines, which are now selling at ridiculous low prices, whilst the prospect of early profits are unusually great.

ROSEWARNE CONSOLS, in 3973 shares, situated in one of the best districts for copper in Cornwall. It has been worked for several years, during which large quantities of ore have been returned, the present sales being about 30 tons of rich ore every month. Here is a mine selling from 7s. 6d. to 10s., whilst the machinery and plant on the property is worth more money, independent of the chance of a great improvement taking place within the next four months.

EAST CHIVERTON, in 4000 shares, adjoins Wheal Chiverton, and has the same lodes passing through the sets. During the past month the mine has greatly improved. The prospects of a speedy improvement, and the amount of work already done, warrant these shares being at least 25 each, now obtainable at 22.

EAST PROVIDENCE, in 3990 shares, joins the celebrated Providence Mines. The mine is looking exceedingly well, and in about six months will show a good profit on the working. They are now returning about 12 tons of rich tin every quarter. Upwards of £24,000 has been expended in bringing the property to its present state. There are two engines, and all necessary surface and underground machinery, in efficient working order, yet this mine is selling for 21 per share, worth at least 25.

GREAT SOUTH CHIVERTON, in 6000 shares, joins West Chiverton, Wheal Chiverton, Chiverton Moor, and South Chiverton, having parallel lodes to those of West Chiverton. All surface machinery and buildings erected. The mine is just now getting into ore ground. Lead, copper, and blende have been discovered at the 20 (samples of which can be seen at the office). There has been already expended upwards of £8000, whilst the shares can be secured at about 7s. 6d. each, and should be bought at once. Whilst properties of such intrinsic value as these can be obtained at such nominal prices, investors will do well to embark their capital in them, and we feel assured that in advocating their purchase larger profits will be realised than investing in undertakings which are now selling for double their real value.

All communications will receive immediate attention, either personally or by letter.—No. 2, Bucklesbury, London, E.C., Nov. 23, 1866.

Bankers: London and Westminster.

Original Correspondence.

THE UTILISATION OF SODIUM IN GOLD AND SILVER AMALGAMATION.

SIR,—I note in the *San Francisco Mining and Scientific Press*, of Oct. 6, some exceptions taken by Mr. G. Kustel to portions of my communication to the American Association at its recent Buffalo meeting. On referring to the preceding number of that valuable journal, I find that the substantial part of my Buffalo paper was not before Mr. Kustel, the article copied consisting of but a few of the concluding paragraphs of my article. Presuming that the more complete abstract, prepared by myself for some of our American mining periodicals, will probably find its way into the *Mining Journal*, I shall assume, in my rejoinder to Mr. Kustel, that your readers have the case presented to them in its entirety.

It appears that, although Mr. Kustel has before admitted, and now again repeats, that the use of sodium amalgam is beneficial in gold amalgamation (which can only be understood as a concession of all I claim)—that sodium exalts the adhesion between quicksilver and the precious metals, and prevents the flaming of amalgams of the latter he still strangely insists that it can act only by decomposing silver ores chemically, according to its long-known and familiar power of removing most of the metalloids from their argentic compounds. I must reiterate what I supposed I had clearly enough expressed in my specifications, published months since, that I do not contemplate interfering with the reducing agents (iron, &c.) now in use; but that my discovery consists in greatly accelerating and intensifying their action by adding a minute quantity of sodium.

I recommend to Mr. Kustel and to other practical metallurgists (all, of course, familiar with the tardy and tedious action of iron on moist chloride of silver) to bray together in a mortar some iron filings, quicksilver, and precipitated chloride of silver, adding, meanwhile, a small quantity of sodium amalgam, the sodium in which, however, may be but a small fraction of that equivalent to the chloride. The almost instantaneous result will be a mass of pasty or nearly solid silver amalgam. If such phenomena as this are to be ignored, or pooh-poohed, as signifying nothing, and having no bearing on the working of silver ores, I have but to submit respectfully that this seems like carrying an assumption of practicality (?), and an affectation of contempt for science considerably beyond the limits of common sense. The above little experiment will serve, for the present, to exemplify and illustrate the mode in which the exalted adhesion and more intimate contact produced by sodium enhances and quickens voltaic and chemical reactions between metallic substances. This is the first of the discoveries upon which my new methods are based; and the second depends simply upon the correlated principle that metallic cohesion, as well as adhesion—that is, attraction between homogeneous as well as heterogeneous surfaces—is at the same time exalted by sodium, whence it arises that floured and pasty precious amalgams, which incorporate together with difficulty, and only on application of mechanical force, coalesce spontaneously and with avidity, when quicksilver, containing a minute quantity of sodium (or, as I have been somewhat ridiculed by Mr. Kustel for expressing it, in the "magnetic" condition), has been added thereto. It is on this ground that I have recommended the use of sodium in separating and collecting diffused silver amalgam from a slime or pulp. Mr. Kustel's brief comment on this, that "this may be so," seems hard to reconcile with his belief, expressed in another paragraph, that sodium must "cause a greater loss of quicksilver, by rendering the latter liable to be ground to flour." I fully agree with him that "silver amalgam is not silver ore," though unable to see clearly the bearing of the observation.

Mr. Kustel adheres still, also, to his preconceived idea that iron pans will have to be eschewed in all operations with sodium amalgam; his reason, as I understand it, being the "local" voltaic action which may set in upon mutual contact of iron, sodium amalgam, and water, which theoretically should soon remove all the sodium. I have, nevertheless, before pointed out, as the result of my own experiments, that when the iron becomes inflamed by the amalgam this "local action," as in the case of the zinc of an ordinary voltaic couple, is greatly retarded. With some kinds of iron it becomes almost nil. I wish now, however, to show conclusively that this objection is a "bugbear." A moment's thought would show anyone skilled in the art that the mullers of the pan should keep the quicksilver so diffused in globules throughout the slime that no contact of consequence with the iron can occur. When such diffusion does not take place it merely argues imperfect manipulation.

The most that can be made of this objection of Mr. Kustel is a suggestion that the mullers be of stone, or some material other than iron. My results, nevertheless, are to the effect that the amount of sodium requisite to produce a very marked benefit falls much below that which is requisite to engender the voltaic action upon surfaces of cast-iron, which Mr. Kustel deems so very objectionable.

I have to complain of Mr. Kustel's apparent insinuation that I have fallen into a common method of "putting the cart before the horse," by trying to force the results of experiment into accordance with a preconceived "idea." I claim that the ideas I have promulgated are solidly founded upon experiment, and still maintain that Mr. Kustel's assumption, that sodium may only be used on silver ores as a decomposing agent, and that, therefore, it is necessary, also, to go to the extreme of decomposing the ores of the baser metals, thus contaminating and flouing the quicksilver; and his other assumption, that the iron walls of a pan necessarily neutralise and destroy the efficiency of sodium under all circumstances, and his experiments based thereon, as reported, have no real applicability to the case, as I said in my Buffalo paper. I believe that, apart from the "self-confidence" of which Mr. Kustel (if I apprehend him) accuses me, I can appeal to the facts set before your readers to sustain these claims.

I also claim that Mr. Kustel's opinion, that sodium is "too expensive" to be applicable as I propose, is untenable in the extreme. As a *reductio ad absurdum*, let us suppose that it were necessary, as he believes, in the translation to amalgam of the silver in an ore (the chloride, for instance) to use an equivalent quantity of sodium; then, as 1 lb. avoirdupois of sodium is equivalent to 4.7 lbs. of silver, or about 75 ozs., worth at \$1.29 per oz. \$96.75, it is necessary to show cause why the cost of sodium must approach this latter sum (in coin) per lb., to prove its use even for "decomposing" chloride of silver unprofitable, and to give any currency to this "idea" of Mr. Kustel's. I fear it may be necessary for me to add here distinctly, that these calculations are intended only as illustrative; else I might be accused of advocating and justifying the direct use of sodium as a reducing agent in silver metallurgy, the time for which has not yet come.—*Broadway, New York, Nov. 1.* HENRY WURTZ.

Abstract of a Paper on "The Utilisation of Sodium in Gold and Silver Amalgamation," read before the American Association for the Advancement of Science, by Prof. HENRY WURTZ, of New York City.

Very much discussion has been going on for about a year past, arising out of my recently-announced discovery of the extraordinary effect of the alkali metals in amalgamation. Confirmations of my results from the most reliable sources have appeared abundantly, as well as various criticisms, objections, and even what are represented as negative results. I desire to present a very concise statement of the progress of these things, believing the association will not fail to be interested in a subject having such vital relations at present to the prosperity of our country as the successful saving of gold and silver. Prof. B. Silliman reported last January, at the meeting of the National Academy of Science at Washington, the first actual working results with sodium made public in this country, although it seems that the new method, divulged to divers persons several years since, had already been actually adopted during the year previous in Wales, California, and elsewhere—the value of the discovery being so easily tested and so obvious that heralding and puffery were not needed to bring it into notice.

The communication of Prof. Silliman was extensively copied, and is referred to now to introduce a continuation of his experiments in another form. In order to ascertain whether the assays of the tailings after amalgamation would give confirmatory results. The following report from Dr. Torrey to Prof. B. Silliman is introduced as embodying such result:—

"New York, Jan. 28.—We send you the results of our assay of the 'tailings' which you transmitted to us; they were marked 'Tailings from ore of Auction and Texas Lode,' which assayed gold \$20. After amalgamation with sodium quicksilver, they assayed—Gold, per ton, \$67.83; silver, per ton, \$1.45.—JOHN TORREY and Son."

It will be found on reference to Prof. Silliman's report that the ore alluded to was one from which the ordinary mode of amalgamation produced but 27 to 30 per cent. of the assay, whilst my method produced from 80 to 83 per cent. The following is a letter from Prof. Silliman to Prof. Henry Wurtz, re-

lating to trials on a working scale, instituted under his advice and direction at some mills in the Pacific States:—

"New Haven, Feb. 26.—I have received advices, under date of Jan. 17 and 27, from Dr. Fisher, in Grass Valley, California, the gentleman I requested to put to the test your new method of amalgamating gold ores with quicksilver containing sodium, and find therein the following passages bearing upon your invention. Under date Jan. 17.—Upon applying No. 1 amalgam directly to the clean copper plates, they amalgamated easily, and retain their coating better than when coated in the ordinary manner. As I advised you in my last, the Eureka Mill, or any other in which the blanket process is employed, cannot give the sodium amalgam a fair test, so far as its value in saving gold on an incline is concerned, for 90 per cent. of the gold saved is detained by the blankets. Parties have been experimenting in Nevada for some time past with sodium. At the Gould and Curry Mill they tried sodium amalgam in the Hepburn pan (1000 lbs. charges of ore), with very satisfactory results. After running six hours at a temperature of 100°, the contents of the pan were run off, and the yield of silver was 10 per cent. greater than when operating as usual. Mr. Attwood tells me that his son, amalgamator at the Ophir Mill, in Virginia City, has obtained some still better results with the sodium amalgam. Under date Jan. 27.—It is a pity that the great value of sodium will prove to be in pans and barrels and on copper plates. Last week, in my experiments at Eureka the gold amalgam from the plates coated with sodium amalgam weighed 70 per cent. more than that from plates coated in the usual way.—B. SILLIMAN."

The following is the substance, greatly condensed, of a report from Dr. John Torrey. Experiments upon ore from the Moss Lode, Arizona:—

"U.S. Assay Office, New York, Feb. 28.—We herewith send you (Prof. H. Wurtz) the results of our experiments upon the comparative value of the new method of amalgamation invented by you, and the old method with ordinary mercury. The ore operated upon assayed—Gold, per ton (2000 lbs.), \$1,072.00; silver, per ton, \$30.00. First Experiment.—A quantity operated upon by amalgamation in the ordinary way, and the slime treated laboriously for 60 minutes, to collect the gold amalgam, yielded fine gold, per ton, \$170.00, equal to 45 per cent. of the ore assay. Second Experiment.—Another quantity, all else the same, except that sodium amalgam was used, 40 minutes only being occupied in separating the gold amalgam from the slime, gave fine gold, per ton, \$817.50, equal to 78 per cent. of the ore assay. Third Experiment.—The tailings from the first experiment (much having been lost, however), amalgamated with the aid of sodium, yielded fine gold, per ton, \$134.00, or 14 per cent. additional of the ore assay. These results, and not a few others of a similar kind, show conclusively the efficacy of your new mode of amalgamation, and its great superiority over the usual method in which ordinary quicksilver is used.—JOHN TORREY."

The California metallurgist, Mosheim, published last winter the following results obtained by him. About six months ago I received several lots of ore to work, and I determined to give sodium a fair test. I worked the same ore, side by side, with the same machinery, and the results were as follows:—First lot of 500 lbs., each pan with sodium yielded 85 per cent. of the assay; without sodium the yield was only 55 per cent. Second lot, different ore, with sodium, 80 per cent.; without sodium, 60. Third lot, different ore, with sodium, 78 per cent.; without sodium, 65. I made many more trials, and found that I got from 5 to 25 per cent. more by using sodium than I could obtain without its aid. I noticed a very great difference, however, in the different kinds of ore, which I have not space to detail. I believe sodium to be of great benefit; less for others.—J. MOSHEIMER."

The Alta Californian, of March 17, commenting upon Prof. Silliman's results, says as follows:—"It may be asserted with confidence that if the results of the general working of gold quartz are as favourable as those of Prof. Silliman's experiments, the gold yield of California will increase from \$5,000,000 to \$10,000,000 annually. There are vast amounts of auriferous quartz that contain barely gold enough to pay for the expense of crushing and reducing, leaving no margin for profit. If the yield can be increased 10 per cent. only by using sodium, the mining of the rock will pay, and the quartz that now comes to the surface, per ton of paying expenses is far more abundant than richer qualities." The Alta also says:—"We add to that of Prof. Silliman the experience of R. B. Gray and Co., manufacturing jewellers of this city. They have been in the habit of reducing the 'sweeps' that is, the sweepings and refuse of their establishment, into which considerable quantities of the precious metals find their way, and at the last reduction, after the sweeps had been put through the regular process, and were ready for sale, according to custom, an experiment was tried by working them over again with sodium. The result was that nearly as much gold was obtained from the second process as from the first. This work was done in a Knox amalgamating pan."

In the special correspondence of the *San Francisco Mining and Scientific Press*, of May 12, in speaking of the Church Union Gold Company, in El Dorado county, it is said that "Mr. Jessup, the agent and correspondent of the company, informed me that the superintendent had also been very successful in the use of sodium amalgamation, not only within the batteries, but also elsewhere wherever used. Both of these gentlemen are testifying in its favour, and taking the most possible pains to point out its advantages." Another correspondent of the same paper, under date May 27, speaking of the Yuba Mill and Mine, in Yuba county, says—"Mr. Leland (the superintendent), acting from suggestions in your journal, has been giving attention to the action of sodium amalgam, and is satisfied it is just the thing for saving the gold in the fine flour state." Late advices received through the public prints from the great Gould and Curry Mine and Mill state that in the month of May this mill crushed and amalgamated 4000 tons of rock, which worked within 11 per cent. of the assay. This statement becomes very significant when it is known that, as my private correspondence shows, Mr. Louis Janin, the superintendent of the Gould and Curry, has for many months been making sodium in a small way for the use of his mill.

The Black Hawk (Colorado) Mining Journal, of June 26, says—"By the use of sodium-amalgam the yield of the Narragansett Mill has been increased more than 30 per cent." And in the issue of July 3 further details are given of the results in this mill, as follows:—"In one section of 20 heavy stamps Mr. Emery, the superintendent, used the sodium amalgam for two batteries, and the common mercury for the other two, during a run of three days, obtaining from the former 5 ozs. of amalgam more than from the latter, which retorted \$6.50 an ounce, or \$32.50 in all." It was also remarked that probably "this result would be even better with more experience," a remark which may be pronounced emphatically sensible and correct. I may add that the Narragansett Mill consists of 40 stamps, if sodium were used in all, according to even these first crude results, the annual yield of this mill would be increased (allowing 25 days for cleaning up by nearly \$15,000 per head of stamps, or \$375 per head of stamps, in these ores, however, better results will be attained by amalgamation in pans, or by some other method involving a degree of comminution far greater than that of the battery. The Journal of the same date says that "Mr. John P. Bruce is running his old 12-stamp mill, two batteries, six stamps in each. For four days last week he used the mercury treated by sodium amalgam in one battery and common mercury in the other. He got 1 oz. 19 dwts. more gold in the former than in the latter." This is about \$40 more in gold, or an increase of about \$500 per annum per head of stamps."

Let me have a word to say of Mr. Bruce, who is one of the oldest and most reliable of the Colorado mill men. In one he says, after relating the above result in his battery—"I am putting into the mill one of the Bertola pans, and will have it running this week. I expect big results from the amalgam with the pan. I think every mill in the mountains will use the amalgam if anybody had it to sell." Later, under date July 17, Bruce says—"Everybody believes the amalgam to be the best thing yet, and everybody would buy it were it for sale here. You can rest assured the amalgam is all right. Last week I used ½ oz. of amalgam to 2 lbs. of quicksilver, and got 1 oz. 19 dwts. of gold. Under a still later date, July 30, he says—"The amalgam is doing nicely for me. The longer I run the mill with it the better I like it. The ore is what we call white quartz, with some copper and white iron pyrites. The Black Hawk Company like the amalgam very much, and will use it all the time. Col. Griffin has some to try on his ore soon. I will send reports from him as soon as I can get them. Everyone thinks well of the amalgam who has had it to use, with two or three exceptions, and I think they did not care to use it."

A recent letter from Prof. Wm. P. Blake, of San Francisco, says—"Sodium amalgam is growing in favour, though many have not been pleased with the alloy they have used," appearing to imply that those parties who have been infringing upon my patents have gained off upon the miners impure or spurious preparations. American metallurgists, however, are not altogether unanimous in admitting all the advantages I claimed for sodium. Kustel, known as the author of a work on gold and silver metallurgy, seems bitterly opposed to its use upon silver ores. In his experiments, however, Kustel has fallen into the error that the use of sodium, to quote from him, "in the decomposition of silver ores," is based upon "his ardent desire for combination with oxygen, sulphur, or any other ores." The addition of sodium to the quicksilver used in amalgamating silver ores, in sufficient proportion to enhance the adhesion of the quicksilver to the metallic silver which has already been separated from the sulphides, &c., by other agencies, will be found highly beneficial, as well as the addition of magnetic quicksilver to a pulp or slime which contains a floured or pasty silver amalgam diffused throughout its mass for the purpose of collecting and incorporating the silver amalgam into one mass. Should enough sodium be present to produce the decomposing effect on the silver sulphides by sheer force of chemical affinity, which Kustel regards as the object of the invention, the real object would inevitably be defeated, as the quicksilver would then become loaded with the baser metals and other impurities, which would destroy its amalgamating power altogether. This is evidently what has actually taken place in some experiments on silver ores which Kustel reports in the *San Francisco Mining Press* of March 31, in which he obtained with sodium but one-third as much silver with a given ore as without it. Kustel's results, therefore, having been founded upon an incorrect idea of the mode of employment of the sodium, have no applicability either *proprio* or *alieno*. Kustel's statement that contact with iron "highly increases the rapidity of the decomposition of water by sodium amalgam" is at variance with my own observations, which have generally tended to precisely the opposite conclusion; and his inference therefrom that iron pans, therefore, cannot be used with sodium, is shown to be fallacious by numerous practical results on record.

Another fanciful objection of Kustel is "amalgamation with the iron of the stamps or shoes." I have shown that no "amalgamation" of iron takes place, but a merely transient enfilming, which is extremely beneficial instead of prejudicial. Kustel admits the prevention of flouing of the quicksilver, and concedes also "that one or two pounds of sodium in a ton of quicksilver will undoubtedly show a good result if gold quartz is treated with it properly."

The negative results of one experimenter, especially when based upon an incorrect understanding, weigh but little against the concurrent positive results of many others. To show that others versed in the amalgamation of silver ores do not concur with Mr. Kustel in his opinions, I shall quote Mr. S. R. Kimball, a conductor of important metallurgical works in San Francisco, who writes April 14, 1866, to the *Mining Press* of that city, as follows:—"I have probably had more practical experience in the use of sodium for extracting the precious metals than any other man, and I have been very much excited by its beneficial results. As Messrs. Silliman and others have given several statements of practical workings, it is unnecessary for me to make any; I am satisfied they are correct, as they correspond with my workings, both with and without sodium. I notice my friend, Mr. G. Kustel, has been making some experiments with sodium on argenteriferous ores, with rather poor results. I hope he will not persist in using without making more experiments with different proportions. If he does this I think he will regret it." Another California writer has thrown out the suggestion that the difficulty of enfilming the particles of gold with quicksilver is due to strongly adherent films

of air; and having observed, he says, that certain metallic powders are more easily wetted by water when the latter contains a caustic alkali, he imagines some obscure analogy between this case and the enfilming of gold by quicksilver, and then reasons therefrom that the virtues of the sodium must be wholly attributable to the caustic soda formed by its oxidation, and that the latter may be substituted for it. Had he made experiments upon some native gold before making his hypothesis, the latter would probably have never been made. The air-film idea occurred to me early in my investigations, but finding that under alcohol and *in vacuo* the refractory gold did not amalgamate better I abandoned it. I may add that the effect of sodium is the same when no water is present at all.

In England, also, some results of practical workings have been brought out. Mr. Thomas Belt writes, Jan. 16, 1866, to the *London Mining Journal*, among other things, that in comparative experiments made upon 500-lb. lots of auriferous galena, which assayed something over 13 dwts. of gold per ton, quicksilver alone extracted but 6½ dwts., and with sodium 13½ dwts., or the whole content. Mosheim has communicated to the press results of other Welsh experiments. He says:—"T. A. Readwin wrote to me about eight months ago that he is making experiments in North Wales, England, with sodium amalgam. He informs me that he uses small iron pans and his amalgamators, of equal number or pans being worked with and without sodium. The result has been that at least 30 per cent. more gold was produced with sodium than without its use. He has promised to give me further results of his experiments as they transpire, which in due time, Messrs. Editors, I will transmit to you."

There are in England, however, also a few who cavil at the new innovation. A correspondent of the *London Mining Journal* objects so far as he can be understood, because the solid of gold has not yet been discovered. Another sarcastically writes that "the sodium process is alike unphilosophical and commercially impracticable." I shall but refer briefly to the conflicting claim to priority of discovery which was entered by Mr. Wm. Crookes, one of the most learned, industrious, and successful of the English scientists. The graceful concession of this point, which Mr. Crookes is considered of late, both by scientists and jurists, to have made by his own silence, and by publications in the journals ostensibly authorised by him, it is thought will not prove any appreciable deduction from the laurels so well and worthily won by him in the field of chemical discovery. The most surprising article elicited by this discovery in transatlantic journals have emanated from certain persons who have denied the authenticity of the discovery altogether, and claimed that the use of sodium in amalgamation of ores has already been a matter of public knowledge for centuries! Mr. John Calvert and another writer (anonymous) have put forth the astounding assertion that extracts can be "given from more than 100 works in various languages," showing that not only such a thing as the sodium has been used in this way from time immemorial. Three works are referred to by name—Schwartz's "Alchymia de Salibus," Albaro Alonzo Barba's "Art of Metals," and Roger Bacon's "Ars Omnium." Schwartz's book, probably, does not exist upon this continent, but I was fortunate enough to find a copy of the very edition of Barba referred to in the hands of Prof. George J. Brush, of Yale College, who kindly lent the precious volume, and I now exhibit it to the section. Barba had been anticipated, there is nothing in it indicating in the remotest manner a knowledge of sodium, much less its use in amalgamation. I must, however, express my surprise to find that at the time that book was written, in 1640, almost every refinement in the art of amalgamation, and in other branches of gold and silver metallurgy practiced at the present day, excepting the use of sodium (and not excepting many supposed to be especially of modern origin) was known and used by Barba and his contemporaries. As regards the still more ancient work of Schwartz referred to, I can merely remark that I believe it may be said with reason that a person of lively imagination could find plainly set forth, in the legends of the alchemists, every one of the discoveries of the 19th century, besides a multitude of other discoveries, either yet to be made, or never to be made.

The third work named, that of Roger Bacon, it appears has never been published, but exists, according to Mr. Calvert, as a manuscript of immense magnitude, from which he copies the following from a passage on "The metal of salt," under the heading of "The magic of salt." "It is well that the vulgar understand not the good and great art of salt, as if it were known to all riches would no longer be held rare or respected, as with this metal much gold can be obtained, and such great virtue doth it contain, that one piece of such size that will cover the top of the small finger will work wondrous magic throughout a great mass of such worthless stuff that no man would buy for the smallest coin; yet when this and other metals, well known to all men, still lovingly and speedily unite in one common mass, then the adored of all metals becomes life, and is born unto man, and true and real gold may be taken from these common metals without loss to them in weight or virtue, so that by great craft, cunning, and magic, not enjoyed by common men, good gold, never again to be lost, is transmitted from the vilest of dross, and so men may enjoy riches without prying into others money-bags, or borrowing from those who have little to lend."

This is, of course, set forth by Mr. Calvert as his own translation of the original Latin manuscript, and is interpreted by him as relating to the extraction of gold from ores by amalgamation; but I cannot recognise the possibility of any such interpretation, and believe that all attentive readers will concur with me in regarding it rather as describing many of the most obscure and apocryphal methods of transmuting other metals into gold, in which the alchemists so abound; and I here suggest that, even where it is an unmistakable description of the use of sodium in amalgamation, it would still have no bearing whatever on the question at issue, not being cited from a published work, but from one which has, probably, been as much concealed from the public eye as if it had been newly exhumed from the catacombs of Egypt. I cannot, moreover, help saying that the tendency extant in some quarters to exalt the chimeras and fantasies of the alchemists into a bank of oracular utterances, thus creating a sort of chemical mythology—is as much to be deprecated as would be an opposite tendency to understate and ignore the few kernels of good grain which they really did sow by the wayside, and which have since sprung up, and borne such goodly fruit.

The last branch of the subject I shall touch upon relates to the recent and wonderful announcement from an unknown source, so widely and persistently paraded in the public press, of the amazing *explosiveness* of the amalgam of sodium; one of the most prominent of the New York dailies having, for example, set forth in a leading article, that while metallic sodium is a "harmless substance" (an erroneous statement so very grave, and fraught with danger as to be inexcusable, even on the plea of ignorance), on the other hand, "the terrors of nitro-glycerine itself dwindle into insignificance when compared with those of the new compound, termed sodium amalgam," and "that 1 ounce of sodium amalgam is equal to 25 lbs. of gunpowder," and similar rubbish, *ad nauseam*. With regard to this latter comparative statement, I would remark that, according to this, the samples of sodium amalgam which I have seen, and which are equal to 4 tons of gunpowder, and that I have often made with my own hands, and in one operation, in one day, a quantity equal to 100,000 lbs. of gunpowder. My only object in even alluding to a matter which I am aware is to a chemist merely— "A thing for laughter, sneers, and jeers."

It is to explain the object and origin of such a fantastic and apparently puerile hoax. It was simply an ingenious but futile commercial trick, the motive for it having been the hope of embarrassing the transportation and introduction of amalgams of sodium into the mining regions by those legitimately entitled to introduce it, until the completion of certain arrangements for infringing upon the patent rights that have been granted by the United States in the premises.

In the course of Prof. Wurtz's remarks, he was interrupted by questions from Prof. Stoddard, Perkins, and Hadley. At the conclusion of the paper, Dr. President Barnard made some remarks, and then Prof. Wurtz, in reply, said that he thought he might be regarded as one of the beneficiaries of the world in making two grains of gold available where there was but one before. In response to an enquiry, Prof. Wurtz said that the discovery would lead to an extensive development of the manufacture of sodium, aluminium, magnesium, calcium, &c., to render them cheap and useful in the arts.

SODIUM AMALGAM—REPLY TO PROF. WURTZ.

SIR,—In the *Mining and Scientific Press* of September 29, I find a paper on the "Utilisation of Sodium in Gold and Silver Amalgamation," read by Prof. Wurtz before the American Association for the Advancement of Science, at Buffalo, in which "some objections are considered," whereby Mr. Wurtz, with a sort of self-confidence, accuses me of errors, fallacies, and non-concurrence in opinion with other Californians experienced in amalgamation. Mr. Wurtz says—"Kustel has erred mainly in supposing that the purpose of the sodium amalgam was to decompose silver ores by extracting their sulphur by the affinity of sodium for sulphur." The chemical action by which the sodium decomposes silver ores is the only fact which can be proved as being effective in the treatment of such ores. When over sodium amalgam comes into contact with silver sulphides, chlorides, tellurides, &c., the sulphur chlorine, tellurium, which is set free, is found immediately combined with the sodium in the solution, and only an equivalent quantity of silver is amalgamated—no more. Is this no chemical action? What does it matter whether this chemical action is purely a chemical one, or whether it is combined with an action which "appears" to be in a manner electric, if there is no more silver reduced than what was freed by action of chemical affinity? Is no more silver reduced than what was freed from that point of view which Prof. Wurtz assumes? The "highly electro-positive condition of the quicksilver" is certainly a most interesting scientific topic; but the adoption of this theory does not change the practical result of using sodium amalgam on silver ores, of which only such combination can be reduced perfectly, with a proportional quantity of sodium, as are free of antimony; but this equivalent quantity is just the obstacle which prevents the application of sodium, for two reasons:—first, on account of its being too expensive; second, because it causes a greater loss in quicksilver, by rendering the latter liable to be bound to flour (if used on silver ores rich in sulphur), and in the required proportion, in iron pans).

As to the ineffectiveness of the sole electric condition of the quicksilver, that can be illustrated by the barrel amalgamation with common quicksilver. Here the galvanic action is produced by the positive iron and the negative quicksilver, between which the dissolved salts of the roasted ore serve as a conductor. The galvanic current assists greatly in the amalgamation of the ore; but if half the charge should be unroasted ore, the quicksilver, although in an electric condition, does not affect the sulphurets in the ore, but only the silver which is amalgamated, after it is reduced to a metallic state by chemical action.

Mr. Wurtz says further—"Kustel's experiments having been based upon an incorrect idea of the mode of action, have but little applicability *pro* or *con*, and inconsistencies were pointed out in his conclusions." I cannot understand how inconsistencies can be made upon an "idea" of the mode of action, which (that is, the mode of action) must be found out by the experiment before it can be entirely formed. The conclusions which I based on experiments did prove to be entirely correct; even the remark that no saving of silver was effected in the "inconsistent" use of sodium amalgam in treating silver ores. In regard to the "inconsistency" in plural, Prof. Wurtz says—"Kustel's conclusion that iron pans cannot be used with sodium, for instance, is shown to be fallacious by very numerous working results now on record; in any case, it is fortunate that one negative result has little weight against concurrent positive results of many others." I

When I said that "silver ores cannot be worked with sodium in iron pans," it did not mean the physical "cannot," but the pecuniary. If some people do use sodium on silver ores without minding the result, that is, of course, establish the fact that sodium amalgam can be used in pans. A most simple experiment, however, is sufficient to show the difference between an iron pan and a wooden or stone arrastra. Take a small quantity of sodium amalgam in an iron ladle or spoon (not coated with tin), and the same quantity of a like sodium amalgam in a wooden or stone vessel, both under water, it will be found that the sodium in the ladle will be used up in less than one minute, whilst that in the other vessel will continue for half-an-hour or longer. The ladle appears amalgamated. If

In this case some pulverised silver ore should have been introduced, together with the sodium amalgam, which of the vessels would prove unsuitable—the iron one, containing the sodium in the shortest time, or the stone vessel, where all the sodium is left to act upon the ore? The result and common sense will answer. Mr. Wurtz says—"The rapid and perfect collection and separation from a slime or pulp of contained and diffused silver amalgam, by the use of sodium amalgam, would alone give it an obvious importance." This may be so; but although silver amalgam is not silver ore, the rapid and perfect collection from slimes cannot be executed in pans; it must be done in wooden barrels, with a formidable amount of quicksilver, in which some sodium is dissolved. As to the one negative result against many concurrent positive ones, Mr. Wurtz would be differently impressed if he should visit the mills in Nevada, where silver ores are treated. Our millmen try everything, and use whatever is found economically practicable, in spite of negative writing; but the use of sodium does not seem to be applicable to the silver ores of Nevada, although it is used to some extent for the amalgamation of gold in the quartz mills of California. Where the "very numerous working results" were obtained, Prof. Wurtz did not state.

DETECTION OF FIRE-DAMP.

SIR,—It is quite evident that your correspondent, "Carbon," is not thoroughly acquainted with Mr. Ansell's "Fire-Damp Indicator," otherwise he would not have started an objection to its use which does not exist, or rather which Mr. Ansell has successfully overcome. It is very important that all objections which can be raised to the instrument in question should be made public, in order that Mr. Ansell may be prepared to meet them, as, if the Indicator is to be brought into general use, it should be as perfect as human ingenuity can make it. There is one objection I have heard, which, however singular, will, I fear, militate against its being voluntarily adopted—that in many mines there is such an amount of fire-damp that men, if they knew the extent, would not venture to go down.

KINNAIRD.

CARBURETTED HYDROGEN GAS EVOLVED IN COAL MINES—No. I.

SIR,—Gases evolved in coal mines are more numerous than perhaps it is requisite to enumerate; yet there are two which necessarily demand the attention of the miner, they being generally present, more or less, in all coal mines—light carburetted hydrogen gas (the fire-damp of the mine), and carbonic acid gas (choke or black-damp). The former of these we intend to consider, it being that agent which has too often caused bereavement, and thrown a mourning influence over the colliery villages belonging to those mines where such catastrophes have occurred. Fortunately, however, all coal mines are not equally affected thereby. In some it is emitted suddenly, and, perhaps, when least expected, in such quantities as to render it a most subtle and formidable enemy to encounter, if the means which are placed at our disposal at the present day be not judiciously used in guarding against the effects it is capable of producing. This gas is known to be produced by vegetable decomposition; this is made manifest by observing the large quantity spontaneously formed and emitted from marshy grounds and stagnant pools, where vegetable refuse is ever accumulating, and constantly undergoing decomposition. This spontaneous emission may sufficiently explain the cause of its presence in such large quantities as is frequently experienced in some of our coal mines; coal being of vegetable origin, and having undergone a state of transition from the vegetable form it primarily held, to one of a hard compact mineral mass, will, nevertheless, retain the elements of its vegetable origin or nature, such change being, no doubt, caused by that extreme pressure exerted thereon, consequent on the weight of superincumbent strata, aided and assisted by internal heat. Assuming such change to have been the result of and under the conditions named, it may not be considered too much to presume that gas, during such state of transition, would have been spontaneously emitted if the means of escape had offered. But such escape being closed, it consequently becomes sealed, and retained as a component part of the mineral itself, or is otherwise retained in a latent state.

Although all artificial means and attempts to reduce this gas to a liquid or solid state have proved fruitless, yet such is not sufficiently conclusive that, under the circumstances assumed for its deposition and retention in the formation of coal, it has not been so reduced, and in such condition retained until means of escape are offered by mining operations for it again assuming its natural gaseous form. Its pressure and emission, in many cases, are of a character sufficiently strong to warrant the opinion already expressed, that after being sealed by the deposition of an overlying strata, it must have been reduced to some state other than its natural gaseous one, inasmuch as I think clear and patent to all who are familiar with coal mines, and have had the opportunity of observing the force exerted by gas, when released in sudden outbursts, in what is generally called blowers, that such must necessarily have some very extensive, and almost in such instances an inexhaustible source, owing to the quantity emitted, together with the force and duration of such emission.

I am well acquainted with a blower of gas which at this day, after being constantly discharging for 36 years, does not appear to have lost any of its primitive vigour. This blower is in a stone drift at Killingworth Colliery, in Northumberland, and was encountered when in a hard sandstone rock. This drift was driven from a depth of 60 fms. below the High Main coal seam, to underset or strike the same seam as it dips towards the 90 fm. fault. After undersetting the Low Main coal seam a distance of about 200 yards, when in a thick bed of sandstone, this blower was met; and such was the force it came off with that it caused all further operations to be suspended for a time, until means were adopted for carrying off safely such a quantity of gas as was regularly discharged by this blower. At the point of this outburst it could not be less than upwards of 12 fathoms above the Low Main coal seam, and 8 fms. below the Bensham (vertical measurement). As no smaller seams intervene between these two mentioned, it is thought to have a connection (consequently its source) from the Bensham seam by a throw some distance from its outlet in the drift. That such blowers or outbursts of gas have their connection with seams of coals, or in veins of coal often found embedded in sandstone rock, is an opinion greatly favoured by the results of practical observations. Thin seams of inferior coal, often those which themselves yield a small proportion of gas from distillation, are found to discharge large quantities. It is likewise found when approaching faults, and when these are thrown up any considerable distance it is found to be very inconvenient, as it requires a much stronger current of air to dilute and render harmless the gas formed or discharged in these situations. In like manner faults, when thrown down, are very easily ventilated; any gas discharged ascends by its own gravity, and thus establishes natural ventilation. The blower above referred to has been burning, day and night, for a period of 36 years, and is at this time, or at least was when last I saw it, three years ago, capable of sustaining a constant flame from an ordinary 1-inch gas-pipe, which is inserted in the sandstone rock, and wedged in such a manner as to collect the gas and conduct it by such pipe to be utilised in lighting up the drift. The extraordinary quantity of gas discharged by these blowers, likewise that which is constantly exuding from the pores of the mines silently, but yet dangerously, necessarily suggests the idea of its being in a constant and regular state of formation, for it cannot be rendered clearly manifest how such a quantity of gas could be pressed or bottled up in a gaseous state as are in many instances forcibly emitted by these blowers, together with the constant flow from the pores of the mines. Yet the tendency to assume such gaseous form is evidently very strong; inasmuch as we find that, when once formed, it will resist all attempts and artificial means that have ever yet been employed to confine it within prescribed limits; and I think it would be a difficult matter to define the amount of pressure per square inch required for overcoming its elasticity. An instance of the force it is capable of exerting may here be mentioned, for the benefit of those who might at any time be tempted to confine gas as it oozes in its tenuous character from the pores of the mine within prescribed limits, by artificial means, when placed in similar circumstances, or otherwise when the convenience of the mine might urge.

At a colliery on the banks of the Tyne, near Newcastle, an attempt of this character was made, and certainly it was made under circumstances of a very favourable character, so much so as to leave no doubt whatever on the minds of the colliery officials that their efforts would prove effectual. The particular circumstances, and

the situation of the same, being thus related by one who was a workman at the colliery at the time. A piece of coal being wrought away from the under, or dip, side of a throw, by means of a staple sunk for the purpose of working the same, the seam of coal rose considerably from the staple, so that the water formed in the working of the seam drained itself to the bottom of the staple, it being the lowest point of level, from which it was pumped by manual labour to the top. After sometime working in this position, it was at last resolved to abandon them; yet, from the circumstance of the workings being at a higher level than the bottom of the staple, it still required the water to be pumped out to enable the workings to be ventilated, owing to the quantity of gas given off in them. At length the constant source of expense arising from the water having to be pumped daily from the staple, no doubt, influenced very much the idea and thought of damming and sealing in the gas within the workings, for such an attempt was made by filling up the staple with strong blue clay, with large stones embedded therein, all of which was beat in properly to form as solid and impervious a mass as the nature of the material used would permit, and of such the staple was filled up for a distance of 8 or 10 fathoms from the bottom. For sometime this was thought secured, and was considered as a successful operation; whilst at the same time the gas, from its compressible character, was being pent up, gradually increasing in elastic force until such was sufficient to overcome the resistance (great though it was) offered against it in the staple. The clay and stones were forced up, accompanied with a body of water sufficient to allow the gas to escape in a volume with a sudden outburst, or what is commonly termed a water-blast. This having direct communication with the intake at a point where, under all ordinary circumstances, no danger could be apprehended. It is only just, while mentioning this circumstance, to add that the greatest care and attention had always been manifested by the officials at this colliery for the security of their men from the danger ever attending fiery mines, such watchfulness being rendered necessary by the constant and excessive discharge of fire-damp known to issue from this mine.

For the information of those whose ignorance of the peculiarities of a coal mine is very evidently manifested by their language, and the reflections which they cast upon colliery officials partake very much of a posthumous philanthropy, whose object is rather to angle for popular applause than to assist the colliery officials by their superior knowledge, to the saving of the lives of colliers, I may add that a colliery, or at least the winding and tortuous galleries in them, are in practice something greatly different from the ideas formed of them merely by description; it is true that there is to be a road for air to go in, and another one, quite separate, for it to return by. This expression, according to the knowledge of those practically acquainted with collieries, signifies that the road in means divisions and subdivisions, the air having to be distributed to suit the contingencies of the mine; such having to be brought together again, as each division of air issues from the workings, and escapes into the return air-road. Again, it would be comparatively easy to manage in the manner above described, could such be regular, but as the coal is wrought away it interferes with both intake and return air-roads; gobs are formed, which when fallen will leave a space above the line of ventilation, and when large and extensive gobs are formed, any part of which may at any time give off gas, although not perceptible to the usual tests applied, until, perhaps, a fall of the roof may force it out suddenly, in which case the only guard is the use of a safety-lamp. The quantity of gas issuing in tenuous streams from every part of it, is so considerable as to fill the workings of a colliery with a suspended ventilation in a few days. From the South Shields report, I notice at St. Hilda Colliery an explosion took place on Jan. 14, 1841; the ventilation in consequence of which was stopped for five days, at which time the entire workings were filled with inflammable gas, it being produced at the rate of 1800 cubic feet per minute. In the same year, on Feb. 2, the ventilation of Jarro Colliery was stopped, and in three days the entire workings were filled with inflammable gas, the area of the workings being estimated at 7,700,000 cubic feet, or equal to over 1700 cubic feet per minute.

Mr. J. T. Taylor mentions a water blast which occurred at Percy Main Colliery, in 1840, that in 68 hours there was an accumulation of 12,686,000 cubic feet, or 3100 cubic feet per minute.

At Wallsend, from a 5-acre gob, 52 cubic feet of gas per minute was piped to the surface, and burnt. At Killingworth, I believe at the present time there is an issue of over 1000 cubic feet per minute from the Bensham Bank north gob, at all times when the barometer is low. All collieries, fortunately, are not alike affected by the presence of gas, some being entirely free, whilst others are affected so as to require ordinary caution only, but in all situations, and under all circumstances, it is of the greatest consequence to distribute as large a quantity of fresh air into every part as can be possibly procured, so that the mine may be filled, and kept in motion in order to absorb and carry away all deleterious gases and vitiated air, rendered so by respiration. It is calculated that every man ought to be provided with 250 cubic feet per minute; in large collieries, where a great number of men are employed, likewise horses, the quantity of pure air required ought not to be much under 100,000 cubic feet per minute.

C. H. (Colliery Viewer.)

EXTENSION OF THE ENGLISH COAL TRADE.

"Ireland stood at the bottom of the list of coal-producing countries; and when he heard so much about the condition of that country, he thought that was a fact that should not be overlooked. The miseries of Ireland were prepared millions of years ago, when floods denuded the coal fields, and left only the bottom measures."—Prof. W. S. Jevons "On the Probable Exhaustion of our Coal Seams" (*Mining Journal*, Nov. 17, 1866, page 749).

SIR,—The same learned gentleman commenced his lecture by stating—"But for England coal was the great material source of Prosperity, and its chief source of Power." The statistics yearly published show that all Ireland produced in the year not so much coal as one colliery of an ordinary class here in Westphalia.

In the evidence given (May 5, 1865) before the "Royal Commission on Railways relating to Ireland" (p. 60), it is stated by one witness—"But I may say I look to the introduction of coal into Ireland as the lever and the means of improving that country, coupled with low rates for the transport of goods, beyond anything else." Again—

"As far as my experience has gone on the Continent and everywhere else, I have seen no manufactures, nor any great industry, successful where there has not been a regular supply of coal, even where there has been water-power, wood, and turf in abundance. I believe it would be quite practicable to deliver coal in the interior of Ireland, 100 miles from Dublin, at a cost varying from 1s. to 16s. per ton, and to have it regularly supplied there, so that manufacturers, and other persons requiring it, should feel satisfied that they would be quite safe and secure in commencing operations." &c.

Again (page 61), in reply to question 1204—"If it is not worth while to make branch railways to develop the Irish coal trade, what reasonable ground is there for hoping that a reduction of the rate of carriage of coals would very much increase the English coal trade?"

The answer is—

"Because the English coal trade is already developed. You can have any quantities that you wish to have from England over to Dublin. Ireland imports at the present time about 2,000,000 tons, and I understand that about 600,000 tons of the gross quantity go into Dublin, and this without any connection of the railways (except one) with the harbour or with each other at Dublin, so as to facilitate the passage of this cheap article throughout the country. If, then, you can buy coals largely on the coast of Whitehaven and Lancashire (the coal owners will deliver their coal into the ships at the average price I have stated; I do not mean all screened coals, but the coals as they come from the pits, for the Irish would consume the slack as well as the large coal), at anything like 6s. per ton, and if you deal with hundreds of thousands of tons, I believe there is no question that the English coal would be taken cheaper into Kilkenny than you would get the Kilkenny coal."

Very many witnesses testify to the importance of our English and Welsh coal trade to Ireland, amongst others Mr. Cawkwell, the general manager of the London and North-Western Railway, who states, page 220, question 5241—

"The Lancashire coal proprietors calculate upon getting a very large trade indeed to Ireland; and if they can carry the coal to Dublin, and put it direct from the steamers into the wagons on the quays, and send it away by railway, they will be able to do it, I think." &c.

Again, Mr. F. Allport, general manager of the Midland Railway Company, says, in answer to question 5331, as to the price at which coal could be delivered in Ireland—

"Assuming that we charge 1/4d. per ton per mile, the route it would have to be shipped being a distance of, probably, about 60 or 70 miles, that would be 3s. The cost at the pit's mouth would be the average of 6s. per ton, that would be 9s. per ton. There is no reason why the freight across the Channel, if they had screw steamers, should exceed 2s. 6d. per ton. I may state, with regard to the screw steamers from Newcastle to London, in which, at one time, I was largely

interested, that we were perfectly willing to take a contract for a year at 4s. 6d. per ton from Newcastle to London; 5s. per ton we considered a very fair price and out of that 5s. we had to pay City dues, so that I think I put a fair sum at 2s. 6d. for the communication across the Channel. Thus, if they adopted the same scale in Ireland for long distances, there is no reason why coal should not be sold on the extreme west coast of Ireland at something like 16s. or 17s. per ton at the outside."

Now, coal ranging from 12s. to 17s. per ton, according to the position of the place on the east or west coast of Ireland, is, as Mr. Bidder says (page 178), "such a blessing," that people would consume it; and at all events, men of enterprise and industry being assured of its delivery at such prices, would be as well enabled to establish manufacturing factories there as in parts of England where it is as dear, or much dearer; and thus it appears the coal proprietors of Lancashire, Wales, and Whitehaven joining hand in hand with Irish railway companies, may not only importantly extend their own home market and traffic respectively, with profit to themselves, but with manifest advantage to England and Ireland, and so relieve Ireland from "the miseries" which Professor Jevons says "were prepared millions of years ago."—*Rhenish Prussia*, Nov. 19. OBSERVER.

THE NEW SHROPSHIRE COAL FIELD.

SIR,—In the *Journal* of Oct. 27 you published some remarks of mine on the above supposed new discovery of coal, notwithstanding which I find an article from the *Birmingham Daily Post* of Nov. 12 copied into last week's *Journal*, under the head of the "Report from North and South Staffordshire," and the *Shropshire News* of Nov. 15. Now, Sir, I would not have troubled you again on the matter were it not that I wish to guard the public against the belief that a really "new coal field" has been discovered. The discovery, so called, is fully explained in my letter in the *Mining Journal* of Oct. 27, wherein I stated that the "Great Shropshire Fault" is erroneously shown on the Ordnance Map as a slip fault. The pits lately sunk, called the Stafford Pits, are sunk almost on the line of the slip fault, as shown on the Ordnance Map, which, by the map, is made to divide the coal measures from the overlying Permian. But the writer in the *Birmingham Daily Post*, who expatiates so graphically on the subject, forgets, or may not be aware, that the Lilleshall Company sunk pits (called the Granville Pits) about two miles to the north-east of the Stafford Pits, and about 1/4 mile to the east of the "Great Shropshire Fault" on the Ordnance Map. In the Granville Pits they sunk through about 90 yards of Permian, and reached the Blue Flat ironstone, I think, about July 31, 1866. Now, here was an apparent discovery, but not then described as a "new coal field;" neither is it, as the Granville Pits are on the west side of the Symon Fault, and not on the Wolverhampton side of the said fault, as the several articles would lead the unknowing public to infer. At Madeley the coals have been worked for some years to the east of the line of the Great Shropshire fault on the Ordnance Map, but still they are on the west side of the Symon Fault, and not in a new coal field, in the vast expanse lying between coal fields hitherto known as the Shropshire and Staffordshire.

MARCUS W. T. SCOTT.

Great George-street, Westminster, Nov. 21.

BORING BY MACHINERY, AND BLASTING BY ELECTRICITY.

SIR,—As the important economic results attending the use of my boring machine do not appear to be thoroughly understood by the metalliferous miners in this country, I shall be glad if you will publish the enclosed translation of a letter which I have just had the pleasure to receive from Mr. W. Nast, showing the results obtained with my boring and blasting machines in the Ast Tunnel, Brenner Railway, from Inspruck to Bozen:—

"To Mr. F. Abegg, C.E., London.—By the use of your boring-machine we have obtained the following results in the Ast Tunnel:—

One man bores with the machine, in 30 minutes, a hole 36 centimetres (14 1/4 in.) deep and 4 centimetres (1 1/2 in.) diameter, in hard granitic schist; or a hole 25 centimetres (9 7/8 in.) deep and 4 centimetres in diameter, in quartz.

Two men bore with the mallet, in 30 minutes, a hole 19 centimetres (7 1/2 in.) deep and 3 1/2 centimetres (1 3/8 in.) diameter, in the hard granitic schist; or 16 centimetres (6 3/8 in.) deep and 3 1/2 centimetres diameter, in quartz.

We use your electric machine and fuses with highly satisfactory results, and are able to blast 30 holes of great depth simultaneously.

Sterzing, Tyrol, Nov. 16. (Signed) W. NAST, District engineer of the Royal, Imperial, Southern Railway Company."

This, you will admit, is an extraordinary result, and, no doubt, much of the success may be attributed to Messrs. Nast and Pettenhofer having caused particular care to be taken in the making of the bits of the borers.—*London*, Nov. 21. F. ABEGG.

ALGERIA—No. III.

SIR,—We have now arrived at the northern foot of the Atlas Mountains, and in order to complete the transverse section from the sea to the great forests of date palms that beautify the margin of the great ocean of sand, and give grateful sustenance to its wandering inhabitants, we should cross over and examine this mighty *Sierra*, the proper home of the Numidian lion. Before doing so, however, there are a number of things on the northern side that require consideration, amongst which the El Hummum, or hot springs, near Ain Cranchla, are very curious. These springs, consisting of nearly boiling water, issuing from the rocky border of a considerable stream of cold water, possibly of a volume of 5000 gallons per minute, are situate about 200 yards to the east of where a large copper lode crosses the river. This lode is a strong, compact vein, 20 ft. wide, of spar, blue carbonate of copper, grey sulphate of copper, containing 20 ozs. of silver to the ton, and a large body of barites. The substance of the copper vein being harder than the limestone in which it is embedded, it has formed a bar, or dam, in the stream, over which the water falls for a height of 3 feet before running down to the hot wells. The line of this great lode is east and west "magnetic," and it underlies to the south, under a mountainous ridge 2 ft. in a fathom from perpendicular. It is impossible to imagine a more beautiful substance than the stone composing this lode; it looks like lapis lazuli spotted with silver, and when I visited the spot several tons of it were blasted off the crest of the vein, and lying by the side of the stream. In attempting to account for the strong issue of very hot water, my attention was called to a series of iron beds in the mountain opposite the springs, which beds ran to the south-west, and dipped south-east about 6 feet in a fathom, or at an angle of 45°. These evidently formed a junction with the great copper lode in the high ground to the south, and opposite the hot springs; and it occurred to me while examining these phenomena that the water might owe its heat to the presence of the metals in these metallic deposits. Whatever the cause may be, nothing can be more interesting than the site of these waters and the surrounding scenery. To the west, about a mile, the valley forms itself into a basin, whose sides, apparently built with the regularity of mason-work, rise for 1500 feet above its beds. We passed up to the top of these mighty walls, and found the Arabs rejoicing that the day before they had killed a lion. They said that he was of immense size, and latterly had not been scrupulous in dealing with their flocks. While the lion confines himself to the "sangelier," the wild boar, the porcupine, and such like game, the natives are not disposed to interfere with him; but as soon as he manifests an appetite for mutton and beef his days are numbered. A council of war is held, a hunting party is formed from all the surrounding country, and his destruction accomplished, but often not without a human sacrifice, as the lion does not lay down his life exactly like a lamb. We also saw in a sort of field on this high ground a herd of about 100 camels grazing together.

To return to El Hummums. I do not know if there be any health-giving properties in the water; the spot is, however, very salubrious, and the baths must have been held in high esteem by the Romans. For miles in all directions lie stones, squared by the chisel, showing that the neighbourhood was thickly inhabited, if it were not formed into a city. I saw in the woods a little up the stream finely sculptured columns, no doubt belonging to some temple: the whole place teemed with evidences of ancient life, and I augur that time will see this district re-peopled. It lies from 69 to 70 miles south at the end of a level plain, all the way from Constantine, where the railway will be completed in something less than three years—a plain full of rich pasturage, and covered with flocks. When the mines are opened, what a situation for a railway! I have no analysis of the water in the hot springs, but I forgot to mention that much of the minerals in the copper lode were impregnated with mercury. If a city were constructed here, hot water might be conducted through

every street and every house in it, and if it possesses any health-giving elements, it might become a place of great resort; at any rate the natural riches of the country—its metal, its wool, and its cattle—in any other country would have soon decided its fate as to the dominion of the iron horse. At Ain Cranchia, the whole of the ground for a great distance is covered with old building stones; on removing these, under almost every one was found a scorpion, and in most instances, the remains of a locust was seen by its side, showing that the most venomous of creatures have some office of good in this world. I have seen a scorpion in a ring of fire, he would turn upon himself and sting himself to death. Some person with us, in order to prove this, made a small circle of straw, and lighting it with a lucifer match, placed a scorpion in the middle; the insect made two or three attempts to escape, but finding his way barred by a cordon of fire, he directed his tail to his head, and immediately stung himself to death. On the north as well as on the south side of the Atlas Mountains there are extensive lakes of salt water. I do not know whether these sheets of brine were raised with the ground on which they stand, or owe their origin to some other cause. The valleys on the north side of these mountains are well wooded with oak, cedar, and other trees, and exceedingly well watered; the salt lakes lie at the foot of the chalk formation, and I have heard it said that there were mountains of rock salt near Batna, but I did not go so far to the west as this.—Nov. 21.

COPPER MINER.

CHONTALES GOLD AND SILVER MINING COMPANY.

SIR.—The advice received by the last mail—the purport of which appeared in last week's Journal—cannot fail to be most reassuring to bona fide shareholders, not only that they possess a property capable of producing results fully as remunerative as those estimated in the prospectus, but that the whole of the necessary preliminary operations are being ably and zealously controlled by an experienced mind. The gratuitous but interested statements that were put forth some time since as to the disorganisation among the staff had the desired effect of reducing the market value of the shares, and for which many of "the bears" must have sustained very serious losses. There are even now, I am credibly informed, heavy "bear" accounts still open, and, therefore, if shareholders will act justly with themselves, they will disregard all market operations and rumours, and apply to the only source where trustworthy information can be obtained—the offices of the company. They will find that the last advice are regarded by the board as the most encouraging ever yet received, that the establishment was being rapidly and effectively organised, that every detail was progressing most satisfactorily, and that, although the attention of the staff was being mainly directed to the making of roads between the mines and the completion of the new machinery, yet about 300 ozs. of gold were returned during the month.

Those who have attentively perused Capt. Paul's last report can come to no other opinion than that it is the most conclusively satisfactory one ever yet to hand. For instance, referring to San Antonio Mine—about which so much has been said—Capt. Paul states "that the lode is much improved at one or two points, being worth over 5 ozs. of gold to the ton, the whole of the various points averaging at least 2 ozs. to the ton, and that the lode is 2 ft. 6 in. wide." At San Domingo the necessary operations were being conducted with the utmost dispatch, and in a short time, when the shaft was cut down and timbered, driving on the course of the lode will be commenced, to get to the rich nail, which in the old mine was so productive; and that at Trinidad the lode, 6 ft. in width, is producing 1 oz. of gold to the ton.

It was stated at the recent meeting that the completion of the tramway from the mines to the mills was a primarily important work, inasmuch as until it was finished they had to depend upon the natives for the conveyance of the ore; but by the last advice the shareholders were informed that the dispatch of ore over the new incline double tramway had been commenced, that it worked admirably well, and was capable of transporting at least 150 tons of ore per day. A great deal has been said about the Javali Mine, more especially by those who have bought it at an enormous cost. The shareholders in the Chontales Company, however, do not appear to know that they really possess as large, if not a larger, run of ground upon the Javali lode as those who have purchased the Javali Mine, the difference being that upon the latter operations are in actual progress. Shareholders in the Chontales Company should bear in mind the significant fact that the St. John del Rey Company, after having passed through a more protracted and expensively trying ordeal than that in connection with the Chontales Company, has returned to its shareholders, in actual dividends, not less than 750,000l. (or nearly 70l. per 15l. per share), and from ore the average value of which does not exceed ½ oz. to ¾ oz. of gold per ton, whereas the proved minimum average yield of the ore at the Chontales Mines cannot be less than at least 1 oz. to 1½ oz. of gold per ton, while there is every corroborative testimony that in quantity the ore is practically illimitable. It is such irrefragable facts as these that shareholders should keep in mind, and not be hoodwinked by those whose interest is anything and everything but the success of the company.

ONE WHO HAS BEEN TAUGHT TO BE CAUTIOUS.
Liverpool, Nov. 22.

STANNARIES COURT, AND MINES IN LIQUIDATION.

SIR.—Since the introduction of the Companies Act of 1862 the difficulties surrounding all unsuccessful joint-stock undertakings have been enormously augmented, and the increase of speculative investors, jobbers, liquidators, lawyers, barristers, &c., has been, at least, in proportion to the strides made by the commerce of the country. It is not my intention in this letter to present a synopsis of the companies which have passed into the hands of liquidators during the last four years, but to put a few pertinent questions through the medium of your Journal for the consideration of the public. I have been requested to bring this subject before the readers of the *Mining Journal*, in consequence of an occurrence in the Stannaries Court on the 10th of last month, and published in the *West Briton* on the 16th of the present month. The announcement in that paper was as follows:—"The Vice-Warden asked Mr. Marrack how many cases had occurred since the passing of the Companies Act in which companies had been wound-up by liquidators acting under the supervision of the Court? Mr. Marrack replied, that there had been only four such cases, and of these three had been changed from supervision to compulsory winding-up." Such was the announcement of the *West Briton*. So far as Mr. Marrack is concerned he has "won golden opinions of all sorts of men." He is as just and courteous to an opponent as he is zealous and acute in the interests of a client. He does much to make the Stannaries Court a less troublesome place than suitors must otherwise necessarily find it. And, probably, it is not too much to say that he has the entire respect of all whose business brings them into any contact with him in connection with the Cornish mining interest. These are the hearty and spontaneous concessions of one who has been his opponent, and in that capacity had proof of his integrity and urbanity. However, the readers of the *Mining Journal* must be prepared to form and express an opinion upon such a statement as that gentleman made in Court; but allow me to put the following questions, intelligent answers to which, in your columns, will throw more light upon the subject, which it is desirable the public should possess:—

- 1.—What is the number of the companies which have passed into the hands of the Registrar of the Stannaries Court since the passing of the Companies Act, 1862?
- 2.—What is the number of the companies liquidated?
- 3.—What were the total debts of each when handed over to the Court? [calls, &c.]
- 4.—What is the amount of cash realised by the sale of machinery?
- 5.—What is the amount of calls made by Registrar of the Court?
- 6.—What is the amount standing to the credit of each company at bankers', and what interest has been paid upon it?
- 7.—What is the amount of dividends paid to shareholders, if any such payments have been made?
- 8.—Is it true that certain companies have been in the hands of the Court upwards of four years?
- 9.—Has not the cost of liquidation generally been greater than the cost of working the mine?
- 10.—Is it true that the calls made by the Registrar have been hundreds per cent. in excess of the total debts?

I submit to your consideration, and that of your readers, the very great importance of these questions, more especially as they are points upon which the Court seems reluctant to give information. During the last session returns were ordered from the Court of Stannaries which involved various useful matters for the information of shareholders and all engaged in connection with mines; but upon none of the topics which my questions start for public enquiry and deliberation was any information whatever afforded. Persons naturally hope that when their property comes under the protection of the Government, those who represent it, and who are well paid for doing so, will be diligent, discriminative, economical, and just; but, as in the Courts of Chancery and Bankruptcy, so in the Court of Stannaries, tedious and vexing delay, and exorbitant and shameless expense are the result. The time which any company should remain under the official cognisance of the Court should never exceed two years, and there must be something very peculiar in the case if anything near that time be requisite. A complete return should be made to the

shareholders at the expiration of twelve months. As matters are now worked there is no getting full information by those deeply interested—it may be deeply compromised. There is a *non possumus* policy maintained when information is asked for. This is injurious to investors, to the mining interest, and to the public, and is a scandal in itself. Why should the shareholders be left for long intervals, even of years, ignorant of receipts, assets, liabilities, &c.? If it be necessary for directors to call the constituencies of companies together, it is many times more necessary that a liquidator should render prompt and complete accounts. Indeed, every liquidator should be a practised and acknowledged accountant, so as to ensure three things in rendering the account—clearness, accuracy, and rapidity. Balance-sheets should be placed in the hands of shareholders at reasonably short periods of time, so as to relieve them from the state of uncertainty and anxiety about their property, such as they now are unnecessarily made to endure. It appears to me, Mr. Editor, that this subject should be brought before "the House" next session, and a searching parliamentary enquiry into the constitution and working of the Stannaries Court be instituted.

In Australia and California mining disputes are settled with facility, and to the general satisfaction of the litigants—or rather disputants, for litigation is prevented. The mode by which disputes are adjusted in those places is arbitration, and the cases are very rare in which, if it were possible, an appeal would be made from the decision of the arbitrators. By this means rights are established without a process so expensive or tedious as in England, and unattended by the heart burnings with which we are so familiar. In our colonies the spirit and form in which justice is dealt out is that of arbitration. Competent men decide with consent of parties. A compulsory court of arbitration, presided over by a barrister, with the rank and authority of a judge, situated in London, and with certain rules as to time, expense, and publicity to the shareholders, is the grand desideratum when litigation about mining arises.

A CORNISH CLEIT.

[The above letter is inserted as bearing upon a subject in which mine adventurers generally take great interest, and into which much feeling is necessarily at present imported; but it should be considered that most of the companies which find their way into the Stannaries Court are those which have been lamentably mismanaged during their brief and unhealthy existence, that old mine machinery has been for some years past a complete drug upon the market, and that owing to transfers being frequently made in view of the winding-up the liquidation is excessively difficult.]

CRADDOCK MOOR MINE MANAGEMENT.

SIR.—Whilst other mines in this district take the preference for a progressive rise on development of its mineral wealth, this mine appears to drag on without the least transition or change, in the same manner as the mine for many years past, one lease having already expired, and another partially so. Several of the local shareholders, who are men of practical experience, knowing it to be one of the best pieces of mineral ground in the two counties, have long been dissatisfied with the present management. Take, for instance, the report of the meeting held in January, 1864, where it was stated that Harris's engine-shaft had been completed to the 60 ft. level; and I find at the last meeting the shaft is only now down about 5 fms. below the 70 ft. level in a space of nearly three years, when it should at least have been to the 100 ft. level, the ground being moderately easy for sinking, when no doubt we should be receiving dividends instead of paying calls. The meetings are always held at the purser's office; several local shareholders of long standing usually attend, who have for some years been dissatisfied with the present management, and have always refused to pass the accounts or sign the cost-book, and the meetings are anything but convivial. I would ask my fellow-shareholders at a distance, and who are ignorant of the actual position of affairs at this mine, to attend the next meeting, or depute one of the dissatisfied local shareholders of practical mining experience to represent their interest; it is high time active measures were taken to bring this valuable property to a different position than at present, as upwards of 130,000l. has been made in returns, with but little recompense to the shareholders, calls having been made for a considerable time past, and under the present management will still have to be made, unless a more spirited development takes place. I would suggest the appointment of a thorough practical mine agent to take the management of this mine, under whose superintendence and charge all the affairs of the mine should be conducted, and he should only one opinion as to the merits of this extensive piece of rich mineral property.

Liskeard, Nov. 23.

A SHAREHOLDER.

ROYAL SCHOOL OF MINES.

MR. WARINGTON SMYTH'S LECTURES ON MINING.

On Nov. 12, Mr. WARINGTON SMYTH commenced a course of six lectures "On Mining," at the Royal School of Mines, Jermyn-street. The first six or eight lectures, being necessarily introductory and elementary, do not require very extended reports. He commenced by saying that, lengthy as the intended course of lectures might be, it would prove far too short to go into all the details of so vast a subject, and to treat it thoroughly as its importance deserved. He did not, however, expect to do more than to give them outlines, which if filled up from the books he would recommend, from visits to some of the most remarkable mining districts, and from a careful study of all the details, would make them to a great extent ready for practical work. The art of working mines was intended to teach the student how to combine the theoretical and practical, and to point out the true bearing and meaning of facts and phenomena. Mining schools on the Continent were carried out on a large scale, and produced important results, by combining book knowledge with the knowledge acquired by actual experience. Just as the captain of a ship ought to understand navigation, so a really well-educated miner ought to understand these cognate sciences; and, therefore, the best plan was to let a young man have the opportunity not only of visiting, but of working in the mines, and then a similar opportunity of working at the more extended knowledge which would be given him by a course of lectures and reading. Having once been in the mine, and acquired a practical knowledge of the details, he would see the reasons for doing things in different ways, and would form a more satisfactory judgment in his own mind as to which was the better system. It was only after a double preparation of that kind that a man going back to the actual management of mines would be able fully to carry into practice all the matters treated of in lectures. In the first place, the object of lectures on the art of mining was not by any means to make the hearers into managers of mines, but rather to place before them the principles to be adopted in the art, and to give them some description of the principal methods adopted in different districts, that they might be able to compare them, and thus save them the immense amount of time that would be necessary—supposing they had the opportunity—to go through the various districts, and glean the information for themselves. The task of a miner was one of no ordinary character. When they considered the great depth of mines; the difficulty of extracting not only the valuable minerals but water from those depths in an economical manner; the dealing with dangerous portions of the ground, apt to fall in and destroy the workmen; the difficulty of introducing sufficient ventilation, especially where there were the extra dangers produced by fire-damp;—these, and many more which might be cited, would show that a great deal of attention to detail was required before anyone could properly be expected to deal practically with such matters. Perhaps there was no department of the subject which required greater attention devoted to it than the natural history of the deposits in which minerals are found; and this because it was a subject beset with mysterious phenomena, with doubtful statements, and with great uncertainties as to results; and, therefore, he should have to occupy their attention as much with geology as with mining; and, keeping clear of anything like theories and hypotheses, he should have to bring before them a vast number of incidents which partook more or less of a geological character. There was, however, another division of the subject to which it was desirable that they should first devote a little attention, and that was the condition under which minerals were worked in different countries. In the original division of land throughout Europe, it appeared to have been the rule that, when the surface of the land was conferred upon different landowners, the minerals were reserved for the use of the public at large, and, therefore, the ownership of each was kept quite distinct. The consequence was that the public, having the minerals reserved to them, the latter were leased from the landowners to the Government to those who worked the mines. The term "royalty" was now generally applied to that proportion of the mineral which is paid to the owner by the person who works it. That term showed that it was paid originally to the Crown, as the head of all authorities connected with mineral matters. In this country, however, only the precious metals—gold and silver—were now claimed as the royal metals, there having been, hundreds of years ago, agencies produced which by degrees threw the ownership of the minerals, except gold and silver, into the hands of the owners of surface property. The oldest treatise on mining, in all its details, was a remarkable work by Agricola, published 300 years ago, in which was described very fully the arrangements then made on the first finding of minerals, for the purpose of regulating their ownership. Having referred to a number of these old customs in Cornwall, in Spain and Portugal, in South America, and elsewhere, the lecturer described the present system. In the North of England, for instance, they could not get ground for working the lead ores without paying to the owners of the minerals as much as one-fifth of the gross produce. This was so enormous that unless the deposits were extremely rich, and worked under extreme difficulty, it must be a great drawback to any attempt to develop a mine where any difficulties were present. In certain other districts, as, for example, in Wales and other places in the North

of England, one-seventh, one-eighth, and one-tenth was common. But in the South-West districts, where the difficulties of great depths and being heavily watered, and the difficulty of having ore so much mingled that it had to be ground very small or stamped into a very fine state—all those things had conspired to lower the rate below that of every other district in England. In Cornwall it was very unusual for miners to pay a higher royalty than one-fifteenth, very frequently one-eighteenth or one-twentieth, and even one-twenty-fourth, and for a time, to encourage speculation, one-thirtieth or one-fourth might be accepted. At the present moment, unfortunately, so great a depression existed in the mining interests of those western districts, that if the owners of the surface had not made a reduction in the royalty it would have been almost impossible for many of the mines to have been carried on. In the case of some minerals a money royalty was taken instead of a proportional one, and there were places, in North Wales, for example, where the royalty would be so many shillings upon the ton of lead ore prepared for the market. On iron ore a sum of from 6d. to 2s. 6d. per ton was very commonly paid, the rate varying according to the richness of the ore and the facility of sending it to the market. So also with coals, the proportion paid being very different, according to circumstances. A very common rate was 6d. per ton, but there were cases, where it could be won with great facility, where the royalty amounted to as much as 2s. 6d. It would, therefore, be evident that there was a great consideration to the would-be miner before actually taking the mine.

A much greater liberality than formerly now existed on the part, not only of our own Government, but those of foreign countries. In Italy a new mining law had been established, which had been the means of enabling English companies to employ capital profitably there. In Prussia, too, a new law had come into operation, of an extremely favourable nature to mining speculation. A few years ago 1-10th had to be paid to the Government, but the effect of the law of 1861 had been to reduce that sum until at the present time was only 2 per cent. of the produce of the mine. The English miner, however, made his own arrangements with the owner of the soil; hence it was that mining in England was of a very different character to that in foreign countries. In England the great object was to take out as much of the mineral in as short a time as possible, hence they found a great amount of energy thrown into the work, but at the same time a less amount of foresight for the future. The consequence was in some cases they neglected operations which ought to be carried out if they wished to carry the mine on for a great length of time. In foreign countries it was very different; they found a smaller amount of energy, but every arrangement was adopted which would ensure the comfort and safety of the miner, and it was not forgotten at the same time that there were mines which, by means of provident management, had been made to last a hundred years, whereas, had an unscrupulous system of working been adopted, they would, probably, have had to be abandoned within a short space of time. Those were principles which were thoroughly at the base of mining, that when they heard comparisons made of different systems, they must make allowances for the different circumstances in which each was placed. (Applause.) The lecturer continually illustrated his remarks by references to plans, maps, and diagrams.

In his second lecture, Mr. SMYTH said that the system adopted in commencing to work a mine was different in Great Britain to the instances he had already described. The rule here was, after previously examining the ground, to arrange with the owners of the minerals such terms as might be thought mutually advantageous. The first thing, then, would be to acquire a knowledge of the various repositories in which the useful minerals were to be looked for. The minerals were generally found aggregated in two great series—the stratified and the unstratified, or igneous rocks. In the present lecture he dealt only with the first, and explained the various meanings of the local and technical names by which they were designated in various districts—beds, strata, seams, delfs, sills, measures, posts, and girdles; illustrating his remarks by references to numerous stratified and unstratified modes of deposit, and various diagrams and drawings. These showed the way in which the veins, or, as they were more or less horizontal, were in the crust of the earth found to be distorted, or broken up, or tilted, producing what is called "the dip." The first great object for the miner was to make himself thoroughly acquainted with the inclination in any given district of the beds or strata, and their relation to each other. The thickness of beds was exceedingly variable, and the names of many seams of coal, which referred to a particular thickness, did not represent that thickness throughout. Thus, the 10-yd. coal of Staffordshire varied from 26 ft. to 36 ft. in thickness. Coal in this country was met with in various degrees of thickness, from beds of 1 inch thick up to the Staffordshire beds of 12 ft. or more. In France, where the coal measures are much twisted and broken, there were beds, which he had seen himself, 100 ft. thick, and often lay at right angles from roof and floor. The most convenient thickness to work was from 4 feet to 8 ft. In Yorkshire, parts of Lancashire, and Gloucestershire, beds as narrow as 1 ft. 6 in. are worked; and in Radstock, Somerset, only 11 in. seams were got, yet great difficulty the miner had to contend with in the coal districts arose from variations in thickness and quality. This thickness was not, as might be supposed to have the strata horizontal, and everything favourable to working, but when fairly got into it might turn out, that while in one part the coal would be of a highly bituminous quality and free from ash, in another it would be very ash, and mixed with pyrites. Sandstone and limestone often, in the same way, differed in quality in the same beds, of which the Houses of Parliament furnished a striking example, the stone for which was at first remarkable for all the best qualities of an enduring kind, and yet afterwards lost those qualities to a considerable extent, and became more friable. Another curious circumstance was, that what was called "partings," but which was nothing really but what geologists termed "faults." In the famous under-see collieries of Lord Lonsdale, at Whitehaven, a little parting of white sand came into the coal, at first not thicker than a knife blade, but which gradually thickened out so as to render it necessary for the colliers to work both above and below the parting, and thus the cost of getting was greatly enhanced. Other cases of that kind were described in Mr. Jukes's work on "The Coal Field of South Staffordshire." Another curious phenomenon was when the coal seam gradually rose to the surface, and then lay away, and then beyond a certain point thickened again gradually, until it regained its former thickness; an instance of which in the Forest of Dean was described, with the assistance of a diagram. On the Continent beds were so greatly contorted that the same shaft sometimes intersected the same bed three or four times over; but there was only one instance of this kind in England—in the Mendip Hills, near Bath, where the beds were so thrown about and twisted that it was difficult to know which was the top and which the bottom. The stratified rocks yielded a vast number of extremely valuable minerals, particularly ironstone. In the Lias formation at Middlebrook its working had become of so much importance, that the owner of a certain estate, who did not receive anything a few years ago, now realised 35,000l. a year in the shape of royalty.

In the third lecture, Mr. SMYTH gave a description of the unstratified rocks, the veins or lodes in which, instead of running horizontally, were chiefly vertical, or with a dip at the angle of from 40° to 50°. Veins often had a parallelism with the surrounding masses of mineral within, and frequently extended in an unbroken manner through rocks of various and different kinds. These veins varied greatly in size and extent. The larger ones were called "veins," but the smaller "branches," "streams," or "ribs." The two great points in working a vein to be observed were the direction in which it ran, and the dip. The direction was generally pretty regular where the rocks were distinctly characterised, but when they were broken up and distorted it was difficult to trace the vein through so many different kinds of rock, and its value would often greatly vary. The dip was also regulated by the same conditions, and was an accepted rule, that the richness of a lode depended upon the underlay, those which were more inclined to the perpendicular being the richest. There were instances, however, in which the reverse was the case. Amongst the difficulties attending this class of mining, it was found in Derbyshire, Yorkshire, Durham, Northumberland, and in the Alston Moor district, in Cumberland, that the lodes would come vertically down through one class of rock, and then (as it was locally termed) "squinting off" to one side, after which they would reappear. This often led to greatly enhanced cost of working, as it was sometimes necessary to sink another shaft, or to get at the lode by cross-cutting. A remarkable instance of this kind had been found at the Wheel Jane, near Truro. The average thickness of metal-bearing lodes, taking all the districts in the world, was from 2 to 6 feet, but in this country productive and valuable lodes were worked of much less thickness. Of course all veins must have a certain intrinsic value to make them worth working. It would hardly be worth while to work a seam of ironstone only 2 ft. thick, but lead ore of the same thickness would amply repay the adventurer. Germany there was a mine the owners of which had, at great cost, cut through 260 fathoms of hard rock, to get at a vein of silver 2 or 3 inches thick on an average, but the metal was of such value as to render the working very profitable. In Transylvania, too, mere strings of ore, only one-fourth or one-tenth of an inch in thickness, were worked at a profit. He would now speak of some exceptionally large lodes. At Schemnitz, in Hungary, there was a large lode, from 40 to 60 feet in breadth; but there was a still larger lode met with in Mexico, at a celebrated mine there, which attained a thickness of fully 130 feet. The most remarkable mine, certainly, in this country, at the present time, was known as Devon Great Consols—a mine which had made upwards of 1,000,000l. profit within the last few years, and which was still of enormous value. The history of that mine, indeed, was a very important one to study, showing, as it did, how the greatest richness of vein alternated with the greatest poverty. In that mine the lode possessed the same richness for a considerable length, and would then become exceedingly poor, but would afterwards turn out as rich as before. Several other examples of a similar kind were described. Another matter of great importance was the sides, or "cheeks," of the lode, which sometimes was of a material entirely different to the vein, and at others some other cognate mineral. With regard to the structure of the veins themselves, there were but few which presented an uniform substance. Generally the more valuable metals were mixed with other substances; and the lecturer exhibited a great variety of specimens, besides which he referred the students to the extensive collection in the museum of the institution. In order, therefore, to ascertain whether any particular lode was worth working, it was highly necessary to ascertain what was the nature of the materials associated with the metal sought for. The variety of veins, and the conditions under which the metals were found, were so inconceivably great that it was impossible to lay down more than a few general rules, the particular modes of treatment being dependent upon the peculiar circumstances of each case.

The fourth lecture related to the Distribution and Extension of Mineral Veins. Some of the specimens exhibited the previous day showed that the structure of the lodes from which they were taken was ribbon-like, or as if the masses were a series of stripes. In those cases it was supposed that the lodes were deposited at different periods, and so it became of importance to know whether the ore searched for belonged to the newer or the older deposits. This raised the question as to the manner in which the fissures in which the lodes were had been filled up. This was a fertile subject of dispute, and there certainly at present were not sufficient data to settle the question. The practical effect of the present incomplete state of knowledge was that much was left to the sagacity of the miner and to the observation of trivial matters, which by comparison were supposed to lead to conclusions which frequently proved to be satisfactory. The lecturer then drew attention to a large drawing of a section of the famous Botallack Mine, visited some time ago by the Prince and Princess of Wales. That mine was worked to a great distance under the sea, it having been found necessary, by the interpolation

HOLLOWAY'S PILLS—THE GRAND SECRET.—With the fogs and foul vapours of winter ill-health will creep in unless the blood from time to time be purified, and noxious matters expelled from the body. In this matter the public may be its own physician. Holloway's pills may be purchased at a trifling cost, instructions for taking them will be found on the wrapper, and a little care will enable persons to keep themselves in health under any trying circumstances. These pills act as alteratives, tonics and aperients. Holloway's medicine should find a place in every house and home, where it should be ready for instant administration when the slightest symptom gives warning of approaching indisposition.

BRITISH MINES.

THE MINERALS OF NEVADA.—In reference to the mines of the district, Mr. W. T. RICKARD, F.C.S. (now resident in Virginia city), writes that during the last three years it has been opened on and partially worked at various points, with uniformly encouraging results—the most prominent mines being the Monte Christo, St. John, and Occidental; but it is only since the thorough development of the latter, by the spirited and unaided exertions of Messrs. West and Co., that the great value of this deposit has begun to be appreciated by the public—a pretty general prejudice existing here against mines the matrix whose vein matter is anything but quartz. The matrix of the lode in the Oc-

dental is crystallised carbonate of lime at the southern extremity of the claim (of 1800 ft.), terminating in white quartz at the northern end. The inference to be drawn from the analysis of a poor specimen of this ore made by Mr. Rickard is that the silver exists chiefly in the form of sulphide, with a small proportion of chloride—the gold being in the native condition, invisible from the very fine state of division in which it is disseminated through the mineralised portion of the ore. The general appearance of the ore is very similar to that of Copalpo, in Chili, and from which most of the Chili silver is obtained.

CHONTALES.—There are reasons to believe that unfair attempts are being made by anonymous circulars and otherwise to intimidate the shareholders; and therefore, in justice to themselves, they should follow the advice given by Earl Nelson (the Chairman), in a letter which appeared in the Journal a short time since—that they should be cautious in giving credence to any statement that does not emanate from the directors.

CALDBECK FELLS MINING COMPANY (LIMITED).—The numerous shareholders in this company will learn with much surprise that at the meeting held at Wigton, on Wednesday, the local directors passed a resolution to remove the registered offices of the company to Wigton, and this without any previous notice whatever. They had previously surprised the shareholders by giving notice that they intended to forfeit all shares on which the last call was owing, notwithstanding the necessary legal notice had never been issued; but they did not carry that out, inasmuch as the meeting was adjourned for three weeks. Messrs. Foakes, Phillips, Davis, and Ward, representing the London interest (the first-named gentleman being the principal London director), attended to protect absent shareholders, but without success; but a resolution was passed for a committee of investigation. The local directors would not even allow a single London shareholder to be on it. They also expressed their intention to work the shallow levels in preference to opening up the mine in depth, notwithstanding how necessary this is to ensure permanently good results, and bring the mine into a condition becoming its magnitude and importance. The shareholders should at once take steps to prevent their property thus being sacrificed to individual interests, and, at the same time, insist upon all the directors resigning their seats at the board. Mr. Phillips, of New Broadstreet, has been appointed by the leading proprietors in London their representative, and shareholders have been requested by circular to at once communicate with this gentleman.

CARNARVONSHIRE CONSOLS.—Much sooner than was expected, they have intersected a cross lode in driving the 20, on No. 1 lode, at Coedmaur Pool Mine, and Capt. Kitto states that it is yielding some very nice lead. At Pencair they are repairing the wheel, and putting down pitwork in one of the shafts there, and will be ready to resume the sinking, it is said, in about a fortnight. The driving of the new adit proceeds well. In fact, while the workings that were going on when the company took possession are as productive as they were, the new workings are in all respects satisfactory.

GREAT DEVON AND BEDFORD (COLCHARTON) COPPER MINING COMPANY (LIMITED).—The copper mine and the whole of the property belonging to this company, situated near Tavistock, Devonshire, was sold by auction on Tuesday last at the Auction Mart, City, London, for the sum of 5050*l.*, by Mr. Thomas Blake, of Ross, the liquidator appointed to wind-up the company.

FOREST OF DEAN COAL.—The Farmer's Folly and Windmill Pit Colliery, in the Forest of Dean, 2½ miles from Coleford, and 5 miles from Monmouth, comprising about 142 acres of unworked coal of the Coleford High Delf vein, together with the machinery and plant, were offered for sale at the Mart, yesterday, by Messrs. Gadsden, Ellis, and Scorer, but was ultimately bought in.

As will be seen in our advertising columns, Mr. H. L. Phillips has been appointed managing director of the Frontino and Bolivia (South American) Gold Mining Company, and the Penhale and Lomax Silver-Lead Mining Company.

MR. WALTER TREGELLAS, 122, BISHOPSGATE STREET WITHIN, continues to deal at close market prices, in all good sound DIVIDEND and PROGRESSIVE MINES, either for cash or the account. **BUSINESS IN THE FOLLOWING MINES:**—Great Vor, Trelawny, Emily Henrietta, Cook's Kitchen, New Cliford, East Basset, West Tolgus, Camborne Vein, West Frances, Westminster, St. John del Rey, Don Pedro North del Rey, and Chontales.

MR. D. STICKLAND, M.E., having had upwards of 40 years' mining experience in Cornwall, several years of which he has had the entire management of mines therein, enables him to GIVE GOOD ADVICE thereon. Mining, Railway, and other Shares bought, sold, or exchanged. Shares for sale in mines and quarries that will pay 15 to 20 per cent. per annum. Offices, 5, Finsbury-street, London, E.C.

SHAREHOLDERS IN PUBLIC COMPANIES desirous of avoiding calls and further responsibility will find purchasers on applying to Messrs. BARRETT and CO., 78, LOMBARD STREET, CITY, and No. 20, SPRING GARDENS, CHANCERY CROSS. Stocks, shares, mining, and other miscellaneous securities bought and sold. Investment Review on application. Cash advances made.

FRONTINO AND BOLIVIA GOLD MINING COMPANY (LIMITED).—SHAREHOLDERS ARE REQUESTED TO COMMUNICATE with Messrs. BARRETT and CO., 78, LOMBARD STREET, CITY, for the purpose of calling a meeting to investigate the present state of the company, the resignation of the Chairman and secretary.

TO MINE, SLATE QUARRY, AND RAILWAY COMPANIES.—CAPT. C. WILLIAMS IS NOW OPEN TO UNDERTAKE ALL KINDS OF CONTRACTS, such as DRIVING LEVELS, SINKING SHAFTS, CONSTRUCTING WATER COURSES, CANALS, TRAMWAYS, &c., and ERECTING ALL SORTS OF MACHINERY FOR MINING AND OTHER PURPOSES, having on hand at all times a first-class staff of miners and machinists, who will proceed to any part of the world upon the shortest notice. N.B.—In all cases 50 per cent. will be left in hand until the work is complete. Tyn-y-Wern, Tallesin, via Shrewsbury.

MESSRS. J. H. GREENER AND CO. have always on their list important BUSINESSES FOR SALE, and others for PART DISPOSAL, in Shares or Partnerships, as well as WORKS FOR LEASE, and MONEY TO INVEST.

Parties desirous of disposing of such works as are mentioned below are invited to send particulars; and those wishing to invest will find this an advantageous medium for ascertaining the commercial value of the concerns which Messrs. GREENER and Co. negotiate.

The classes of property to which they chiefly devote their attention are—COAL AND IRON MINES, IRON FOUNDRIES, ENGINEERING WORKS, SHIPBUILDING YARDS, BREWERIES AND DISTILLERIES, and large MANUFACTURING WORKS.

For CAPITALISTS and others, wishing to invest from £500 and upwards, Messrs. J. H. GREENER and Co. keep a Register of all Manufacturing Patents, which they consider likely to be remunerative, and they can advise parties interested in such.

Reports and Valuations made in connection with the business. Particulars on application. OFFICES, 5, JOHN STREET, ADELPHI, LONDON, W.C.

BRITISH, COLONIAL, AND FOREIGN PATENTS, REGISTRATION OF DESIGNS, COPYRIGHTS, TECHNICAL TRANSLATIONS, DRAWINGS, &c.

MR. MICHAEL HENRY, Memb. Soc. Arts, Assoc. Soc. Engineers, Author of the "Inventors' Almanac," and the "Defense of the Patent Law." PATENT REGISTRATION AND COPYRIGHT AGENT AND ADVISER. Inventors advised in relation to Patents and Inventive and Industrial Matters. Printed information sent free by post. Specifications drawn and revised. Searches conducted. Abstracts, Cases, and Opinions drawn. Translations of Catalogues, Trade Notices, and Circulars for the approaching Paris Exhibition. Mr. HENRY has had special experience in technical French, and in French Manufacturing and Commercial Matters. Offices, 68, Fleet-street, E.C., London, corner of and entrance in Whitefriars-street.

HUNT'S PATENT ORE SEPARATOR AND GOLD WASHING MACHINE.—Information respecting the above machines can be obtained on application to Mr. WILLIAM HUNT, 95, Bishopsgate-street Within, or Mr. JOHN HUNT, at his works, Portliver, Helston, Cornwall. N.B.—Any person making or using the above machines, without previously obtaining a license, will be proceeded against according to law.

WILLIAMS'S PERRAN FOUNDRY COMPANY, PERRANARWORTH, CORNWALL. MANUFACTURERS OF STEAM PUMPING AND EVERY OTHER KIND OF ENGINES, together with BOILERS, PUMP CASTINGS, and MINING TOOLS of every description, of the very best quality. Estimates given for the supply of any amount of machinery. London Agent.—MR. EDWARD COOKE, 2, Crown Chambers, Threadneedle-street.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, NOV. 23, 1866.

COPPER.		£ s. d.	IRON.		Per ton.
Best selected.....	per ton	89 0 0	Bars Welsh, in London	7 0 0	7 2 6
Tough cake and tile	"	86 0 0	Ditto, to arrive.....	7 0 0	—
Sheeting and sheets	"	91 0 0	Nail rods.....	7 10 0	9 5 0
Bolts.....	"	93 0 0	Staffs, in London	8 7 6	17 6
Bottoms.....	"	96 0 0	Bars ditto	8 7 6	10 0 0
Old (Exchange).....	"	77 0 0	Hoops ditto	8 7 6	10 0 0
Burra Burra.....	£86 0 0	88 0 0	Sheets, single.....	10 0 0	11 0 0
Wire.....	per lb.	0 11 3/4	Pig No. 1, in Wales.....	4 6 0	4 10 0
Tubes.....	"	0 1 0 3/4	Refined metal, ditto.....	4 0 0	5 0 0
BRASS.			Bars, common ditto.....	6 0 0	6 10 0
Sheets.....	per lb.	10 1/2 d.	Do. mch. Tynor Tees	7 10 0	—
Wire.....	"	8 1/2 d.	Do., railway, in Wales	5 10 0	6 0 0
Tubes.....	"	11 d.	Do., Swed. in London	7 6 11	0 0
Yellow Metal Sheath, p. lb.	7 1/2 d.	8 1/2 d.	Do., to arrive.....	11 0 0	—
Sheets.....	"	7 1/2 d.	Pig No. 1, in Clyde.....	2 14 2	3 2 3
SPELTER.			Do. f.o.b. Tynor Tees	2 9 6	—
Foreign on the spot	£21 7 6	21 10 0	Do. Nos. 3, 4, f.o.b. do.	2 6 2	2 7 0
" to arrive.....	21 15 0	—	Railway chairs.....	5 10 0	5 15 0
ZINC.			" spikes.....	11 0	0 12 0
In sheets.....	28 0 0	—	Indian Charcoal Pigs,	7 0 0	7 10 0
TIN.			in London p. ton.....	7 0 0	7 10 0
English blocks.....	85 0 0	—	STEEL.		Per ton.
Do., bars (in barrels).....	86 0 0	—	Swed., in kegs (rolled).....	14 0 0	14 10 0
Do., refined.....	88 0 0	—	(hammered).....	16 0 0	16 10 0
Banca.....	81 10 0	—	Ditto, in faggots.....	16 10 0	17 10 0
Straits.....	£79 0 0	80 0 0	English, spring.....	19 0 0	23 0 0
TIN-PLATES.			QUICKSILVER (p. bottle)	6 18 0	7 0 0
IC Charcoal, 1st qua.	1 14 0	—	LEAD.		Per ton.
IX Ditto, 1st quality	2 0 0	—	English Pig, com.	20 0 0	—
IC Ditto, 2d quality.....	1 10 0	—	Ditto, ordinary soft.....	20 5 0	20 10 0
IX Ditto, 2d quality.....	1 16 0	—	Ditto (WB).....	22 15 0	—
IC Coke.....	1 4 6	1 6 0	Ditto, sheet.....	21 0 0	—
IX Ditto.....	1 10 6	1 12 0	Ditto, red lead.....	23 10 0	24 0 0
Canada plates, p. ton.....	13 0 0	—	Ditto, white.....	27 0 0	30 0 0
Ditto, at works.....	12 0 0	—	Ditto, patent shot.....	23 0 0	—
			Spanish.....	19 10 0	19 15 0

* At the works, 1s. to 1s. 6d. per box less.

REMARKS.—We have still to record the continued depression of the Metal Market, which now approaches nearly to a complete stagnation of business. There appears to be almost a total cessation of operations in metals. If there are any orders in hand, buyers will not give them out, which, we apprehend, must arise from a complete want of confidence in the stability of their correspondents abroad, which causes them to be afraid of executing their orders, lest their position should not be stable on the arrival of the goods abroad, and the bills drawn to meet them be thus dishonoured. It is many years since the metal trade was in such a state of lifelessness, nor does there at present appear much probability of any considerable improvement taking place in the course of the current year. It would be very satisfactory to see something arising which would restore the flagging energies of the trade, and give an impetus to a more propitious state of things; but we much fear that some time must elapse before there is an entire restoration of confidence; and until this is the case, we must expect to find the metal trade continuing in a drooping condition. American orders have somewhat improved during the week, though they are by no means equal to the usual amount of business done with the United States at this time of the year; still we hope that this improvement may continue, as in the present state of the metal market any kind of improvement whatever is very acceptable.

COPPER.—The market for this metal still continues in a very depressed condition, and transactions are very trifling. The smelters are themselves now selling under their official rates, and from second hands purchases can be made at fully 5*l.* under fixed prices. It was expected that a decline in official rates would have been announced by the smelters at their last meeting, but they did not do so, though it seems rather surprising that they should maintain present quotations in the face of so flat a market. Business in foreign also has been done at reduced rates.

IRON.—In Staffordshire the demand is rather quieter, but some of the works are engaged in the East Indian Railway Company's contract for best Staffordshire iron, which helps to keep them fairly employed. There seems no chance of any decided improvement before the close of the year. Some manufactures of pig-iron appear somewhat more disposed to yield in price in order to effect sales. In Welsh the trade of the district has not been, to any material effect, favourably influenced by the easiness of the money market and the lowness of the Bank rate of discount, and buyers on home account continue to purchase sparingly. No change for the better is expected to take place before January quarter, by which time, it is hoped, greater confidence will pervade all branches of industry. The various mills and furnaces, however, are still kept fairly employed, and the workmen are earning tolerably good wages, considering the depressed state of trade generally. The exports are of an average character, and there is every prospect of its being more animated ere long. Business with the United States is much better than it was a few weeks since, and a greater amount of regularity characterises the placing of American orders; specifications for spring delivery are coming in, and these will assist very much in keeping the works in fair operation during the winter months. There is a more active enquiry for the Continent, and with the majority of the other foreign markets business is of an average character. The demand for pig-iron is quiet. In Swedish iron business continues dull. In Scotch pig-iron a decline in price of 3*d.* per ton has occurred during the week, the present quotation being 53*s.* 3*d.* cash.

LEAD.—The amount of business transacted during the week has been only moderate, and prices remain without alteration.

TIN.—The market remains without activity, and transactions to only a limited extent have occurred in foreign. A small parcel of fine round bottom Straits has been sold at 79*l.* cash, and there are buyers of fine square at 80*l.* About 1000 slabs of Banca have been sold at 81*l.* 10*s.* English continues very dull.

SPELTER.—A greater amount of activity has been manifested in this metal, and prices have advanced; about 250 tons have been sold at 21*l.* 7*s.* 6*d.* to 21*l.* 10*s.* cash in 14 days; and at 21*l.* 15*s.* for January. Special brands at outports are held for 21*l.* 10*s.*

TIN-PLATES.—A fair amount of orders are offering for immediate delivery. STEEL and QUICKSILVER remain without alteration.

BIRMINGHAM, NOV. 23.—Bylands' "Iron Trade Circular" says—Iron is slightly better; a moderate business has been done in pigs; merchant iron, of smaller sorts, shows more life.

There has been rather more activity in the MINING SHARE MARKET since our last; but transactions are still confined to a limited number of mines, and to those mostly of a speculative character. Wheal Chiverton, North Crofty, East Grenville, Prince of Wales, South Condurrow, Wheal Agar, East Carn Brea, Carn Camborne, East Basset, West Caradon, West Frances, Chiverton Moor, and Grenville, being the most dealt in. West Chiverton, 57 to 59; at the quarterly meeting, held on the 17th, the accounts showed a credit balance of 15,759*l.* 4*s.* 10*d.*, and a dividend of 2*l.* per share (6000*l.*) was declared, leaving 9759*l.* 4*s.* 10*d.* in hand. The credit side gives in one line, "Lead ore sold during the quarter 14,047*l.* 16*s.* 10*d.*," so that the shareholders who were not present at the meeting are neither made acquainted with the dates of sales, prices, nor quantities sold. A few months ago some of the shareholders complained of the very large balances kept in hand; and since that time the present mode of keeping accounts has been adopted, leaving out, as we apprehend, the last sales of lead—which, in reality, would show a larger credit balance than 9759*l.* 4*s.* 10*d.* The mine report is very satisfactory; the points in operation at the mine are valued in the aggregate at 627*l.* The 100, east of Hawke's, has been driven 12 fms. through a lode worth from 20*l.* to 60*l.* per fm.; the lode in the present end is producing stones of lead. The 100, west of Hawke's, has been driven 18 fms.; and in cutting through the lode 9 feet it is worth 70*l.* per fm. The 100 east, on the north part, is driven 6 fms., worth on an average 20*l.* per fm. Wheal Chiverton, 8 to 84; the accounts at the meeting showed a balance in favour of the company of 542*l.* 13*s.* 5*d.* The sales of lead, the quantities and prices of which are given in this mine, amounted to 986*l.* 2*s.* 4*d.* The best parcels brought

19*l.* 7*s.* 6*d.* and 19*l.* 11*s.* 6*d.* per ton. A call of 5*s.* per share was made. Cookney's shaft is down 12½ fms. below the 80 fm. level; the lode at present is worth 18*l.* per fm. The 100, west of Murray's, is worth 35*l.* per fm.; the rise, 30*l.* per fm.; a wise sinking below the 86 is worth 30*l.* per fm. It will be seen that this mine is getting into a fine position, both financially and underground.

Chiverton Moor, 43 to 5; at the meeting a call of 7*s.* 6*d.* per share was made. The accounts, after crediting lead ore sold 691*l.* 3*s.* 1*d.*, showed a debit balance of 115*l.* 3*s.* 8*d.* The report states that during the three months some good lead ground has been opened in the 50, and from the present appearances the agents hope to have a very productive lode in the 50, west of flat-roof shaft. Carn Camborne, 22*s.* 6*d.* to 25*s.*; Clifford Amalgamated, 6 to 6½; Cook's Kitchen, 6½ to 7½; East Basset, 21 to 23; East Caradon, 5½ to 5½; East Carn Brea, 2½ to 2½; East Lovell, 9 to 10; East Russell, 2½ to 3½. East Grenville shares have advanced to 2½, 2½; at the meeting, on Tuesday, the accounts presented showed a balance of liabilities over assets of 815*l.* 7*s.* 10*d.*, and a call of 2*s.* 6*d.* per share (750*l.*) was made. The report states the lode in the 95 west had improved, worth more than 2 tons of rich ore per fathom, and promising for further improvement. The winze below the 85 is worth 4 tons per fathom. Great Laxey, 17½ to 18½; Great South Tolgus, 10*s.* to 12*s.* 6*d.*; Great Wheal Vor, 16½ to 17½; Marke Valley, 3½ to 4. At Prosper United the mine has improved, and notwithstanding the low price of tin and copper, the returns leave a small profit, while the reserves have increased considerably since last meeting. North Treskerby, 2½ to 3½. Prince of Wales, 24*s.* 6*d.* to 26*s.* 6*d.*; the cross-course lately intersected in the 45 east is said to contain rich malleable copper ore. The 45, west of the cross-course, is worth 1½ ton of copper ore per fathom. Providence Mines, 21 to 23; South Condurrow, 10*s.* to 12*s.* 6*d.*; South Frances, 19 to 21; Tincroft, 9½ to 10; West Caradon, 13 to 14. West Frances shares have been in good demand, and advanced to 6½ to 7½. West Seton, 120 to 125; Wheal Basset, 65 to 70; Wheal Buller, 19 to 20; Wheal Grenville, 20*s.* to 22*s.*; Wheal Seton, 145 to 150; Wheal Uny, 2*s.* 6*d.* to 7*s.* 6*d.* Devon Great Consols, 425 to 435; a dividend of 6*l.* per share (6144*l.*) has been declared, leaving 19,306*l.* 12*s.* 1*d.* in hand. The report of the mine states that the south lode in the 130 east, at Field's shaft, has been intersected to the east of the cross-course 4 feet wide, and worth for ore 2 tons per fathom. In the 90 west the lode is worth 3 tons, or 15*l.* per fathom. Caddy's rise, in back of the 90 east, is worth 10 tons, or 80*l.* per fm. Michell's winze, below the 90 west, is worth 8 tons, or 50*l.* per fm. At Wheal Emma the 175 east is worth 7 tons, or 35*l.* per fathom.

On the Stock Exchange the Mining Market has been inactive during the week, and prices rule about the same. St. John del Rey have been in demand at 51 to 52; Cobre enquired for at 2 to 2½; Chontales, 1 to 1½; Don Pedro, 4 dis. to par; Anglo-Brazilian, 1 dis. to par; Port Phillip, 1 to 1½; English and Australian Copper, 1 to 1; Cape Copper, 1½ to 2½; United Mexican, 1½ to 2; Panulillo, Copper, 4 dis. to 4 prem.; Capula, 1 to 1½; Yorke Peninsula, 4 to 4½; Yudanamutana, after having risen to 1½, 2, close 1½, 1½; Pestanera Gold, 4 dis. to par; Central American, 1½ to 1½; Great Wheal Vor, 17 to 17½; Chiverton, 7½ to 8½; Chiverton Moor, 4½ to 4½; Clifford, 6 to 6½; Drake Walls, 4 to 4½; Devon Great Consols, 425 to 435; East Russell, 3 to 3½; East Lovell, 9½ to 10; East Grenville, 2½ to 2½; Grenville, 1 to 1½; Herodsfoot, 30 to 32; Margaret, 3½ to 4; North Rosken, 3 to 4 (call paid); North Crofty, 1½ to 2; Providence, 22 to 24; Seton, 150 to 160; Tincroft, 9½ to 10; West Seton, 130 to 135. West Chiverton, 60 to 62 (cum div.); the mine is most favourably reported on. Westminster (Limited), 5 to 5½; prospects reported very good. The changes otherwise are unimportant.

IRISH MINE SHARE MARKET.—The introduction of the Russian Anglo-Dutch loan of 6,000,000*l.*, having been the means of bringing down the quotations of the English Funds, the tone of the share market, which had just commenced to show some tendency to improvement, became, also, somewhat depressed, and mining shares did not escape the general disinclination to purchase unless at reduced rates—to which holders are, however, not inclined to submit, in consequence of which there is just now very little doing in these securities. At the close of last week there were but few shares offered of the Mining Company of Ireland, but on Tuesday last, simultaneously with the announcement of the new Russian loan, they were ineffectually offered for sale for January account; but for that account 18*l.* 5*s.* was granted. They have since further needed, and close weakly at 18*l.* (7*l.* paid). Wicklow Coppers have, notwithstanding the above-mentioned unfavourable influences, been throughout exceedingly strong, and have gradually risen from 22*l.* 17*s.* 6*d.*, our last quotation, to 23*l.* 10*s.* for cash, and 23*l.* 13*s.* 6*d.* for the January account; while, for the middle of December, 23*l.* 7*s.* 6*d.* was paid; they are now in less request, but no dealings have been effected. Carysfort showed great animation at the close of last week, and on Monday last they were at 5*s.*, being an advance of 2*s.* per share since that they have, however, been ineffectually offered for sale at the advanced price. General Mining Company for Ireland shares, which stood at 3*l.* 5*s.*, were generally neglected, except that 3*l.* per share has been offered for them without success. Connors have also been heavy, only a trifling amount of business having been done at 13*s.* 6*d.*, with symptoms of a declining market. Of Killaloe Sate Quarry shares no mention has been made, either for buying or selling, at rates likely to be paid or accepted.

At Truro Ticketing, on Thursday, 3884 tons of ore were sold, realising 15,134*l.* 6*s.* The particulars of sale were—Average standard, 104*l.* 19*s.*; average produce, 6½; average price per ton, 3*l.* 17*s.* 6*d.*; quantity of fine copper, 246 tons 11 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	On copper.
Oct. 18.....	4013	1107 0 0	6½	£4 2 0	12 <i>s.</i> 9½ <i>d.</i>	£63 0 0
" 25.....	1917	98 11 0	7½	4 10 0	12 7½	63 2 0
Nov. 1.....	2171	101 19 0	6½	4 6 0	12 6	62 5 0
" 8.....	1370	104 8 0	6½	3 12 0	11 7½	58 10 0
" 22.....	3884	104 19 0	6½	3 17 6	12 3	61 5 0

Compared with the last sale, the standard has slightly advanced. Compared with the corresponding sale of last month, the decline has been in the standard 2*l.*, and in the price per ton of ore about 2*s.* 6*d.*

At the Swansea Ticketing, on Tuesday, 2717 tons of ore were sold, realising 28,665*l.* 9*s.* The particulars of the sale were—Average standard, 92*l.* 1*s.* 3*d.*; average produce, 15½; average price per ton, 10*l.* 11*s.*; quantity of fine copper, 410 tons 19 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Per unit.	On copper.
Oct. 2.....	1364	£97 2 0	11½	£8 5 4	14 <i>s.</i> 6½ <i>d.</i>	£73 10 0
Nov. 20.....	2717	92 1 3	16½	10 11 0	12 11½	69 15 0

Compared with the last sale the decline has been in the standard 4*l.*, and in the price per ton of ore about 12*s.*

The directors of the Devonshire Great Consolidated Copper Mining Company, at their board meeting, held yesterday, declared a dividend of 614*l.*, being 6*l.* per share, arising from profits on sales of copper ore sampled in the months of July and August last. After payment of the same, there remains in hand a balance of 19,306*l.* 12*s.* 1*d.* in cash, or bills not at maturity, and reserved fund, applicable to the general purposes of the company.

At West Chiverton Mine meeting, on Nov. 17 (Mr. E. Burgess in the chair), the accounts showed a credit balance of 15,759*l.* 4*s.* 10*d.*. A dividend of 6000*l.* (2*l.* per share) was declared, leaving 9759*l.* 4*s.* 10*d.* to be carried forward to the credit of the next account. Details in another column.

At Botallack Mine meeting, on Wednesday, the accounts for the three months ending September showed a credit balance of 578*l.* 8*s.* 3*d.*. During the quarter a large amount of money has been expended on the new Carnyorth part of the sett. With an advance in the price of tin the mine is likely to become highly remunerative.

At Wheal Kitty (St. Agnes) meeting, on Nov. 16 (Mr. T. Reace in the chair), the accounts showed a credit balance of 451*l.* 14*s.* 7*d.*. The profit upon the three months' working was 232*l.* 5*s.* 5*d.*

At the West Basset Mine meeting the accounts showed—Balance carried over from last meeting, 489*l.* 7*s.* 3*d.*; copper ore sold, 1590*l.* 6*s.* 4*d.*; tin ores sold, 741*l.* 19*s.* 1*d.*; advance on tribute, 290*l.*—3021*l.* 12*s.* 8*d.* Costs for Aug. and September, 2164*l.* 7*s.* 3*d.*; royalty, 144*l.* 14*s.* 10*d.*; boundary cost on account, 100*l.*; advance on tribute, 229*l.*; sundries, 181*l.* 14*s.* 5*d.*—Balance, 378*l.* 16*s.* 2*d.*—3021*l.* 12*s.* 8*d.* The balance, 378*l.* 16*s.* 2*d.*, and the proceeds of sales of ore not yet at maturity, amounting to 1160*l.* 13*s.* 11*d.*—1524*l.* 10*s.* 1*d.*, applicable for the yet at maturity, amounting to 1160*l.* 13*s.* 11*d.*—1524*l.* 10*s.* 1*d.*. Captain general purposes of the adventure,

—Total, 3440 tons.

WATSON AND CUELL'S MINING CIRCULAR

WATSON AND CUELL,
MINING AGENTS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Messrs. WATSON AND CUELL having made arrangements for transferring their weekly Circular, which has had a large circulation during the past ten years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and the state of the share market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. WATSON, F.R.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c. &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON AND CUELL have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of the best experienced advice in regard to mining and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON AND CUELL they are emboldened to offer, thus publicly, their best services to all connected with mines or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON AND CUELL transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON AND CUELL also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON AND CUELL are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON AND CUELL having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for commission.

NEW EAST RUSSELL—"J. F."—We deferred answering our correspondent last week because, as the mine is under the same management as the Prince of Wales, and the manager was to be in London, we thought it a good opportunity to obtain from him all the information asked for. We have often written upon the fine prospects of the mine, and explained that near the surface, and close to the East Wheel Russell, one of the finest gossan lodes ever seen was discovered, and the object of the New East Russell Mining Company has been to drive an adit into the hill to get under this gossan. More than two years have been occupied in this work, and the adit is not now very far from the point, and it will come under the gossan 90 fathoms deep, and if the lode is cut rich a profitable mine would be opened out at once, and at a trifling cost. There are other points of interest in the mine, which is making regular though small returns of copper, and sells 35 tons this week. The manager has often told us that he considers the mine one of the best speculations in the country, and it is now not far from accomplishment. We say, therefore, to all, as we said in regard to Prince of Wales, when shares were less than half their present price, *buy*. A short time ago the shares were at 25s., but owing to neglect and absence of business can now be had for less than half that price, and we shall be glad to pick them up for anyone disposed to follow our advice.

"ONE BITTEN"—(Manchester).—Our advice, repeated over and over again in this article, has been, never go into any new concern without having it previously inspected by a disinterested agent. And this is all the more necessary when the most inflated statements are published in newspapers, and agents are found to sign them. Of the particular concern referred to by "One Bitten" we never took the trouble to read the reports, as some of the names connected with it were sufficient for us.

CHONTALES—"SHAREHOLDER."—This is the only gold mine we ever recommended, and we know of no reason for the present low price of shares, except they have been "banged," because rumours of defalcations on the part of an official of another gold mine have been afloat. The latter concern, however, is one that we always avoided, and is not in any way, shape, or form connected with Chontales.

GUIDE FOR ADVERTISERS.—It is beyond question that the great art in advertising consists in carefully selecting those papers likely to be read by those to whom the advertisement is addressed, and in making the announcement itself sufficiently attractive to cause it to be carefully read. The contents of an advertisement must, of course, depend upon the ability to enlist attention of those perusing it, and the selection of the newspapers can in most cases be advantageously left to the agent employed to insert them; but as there are some who prefer to make the selection themselves, Messrs. WATSON AND CUELL, the well-known advertisement contractors of Cowper's-court, Cornhill, and Princes-street, Westminster, have issued a sheet, which cannot fail to be a most valuable guide, entitled "Synopsis of the Newspapers Published in the United Kingdom." The sheet has evidently been compiled with great care, and contains all the information that the most scrupulous and judicious advertiser would be likely to require.

THE LAW OF BUILDING SOCIETIES.—So many persons are now directly or indirectly connected with benefit building societies, that it is difficult to conceive a more generally acceptable legal manual than "A Handy-book of the Law Relative to Benefit Building Societies." The second edition, considerably enlarged and improved, of the handbook of Mr. CHARLES EGAN, barrister-at-law, has just been issued, and as the book contains the statutes appertaining to these societies, and the more important judicial decisions thereon, as well as practical comments defining the jurisdiction of the equity, the common law, the magistrates, and the county courts, with an index and table of the cases and statutes cited, it cannot fail to be favourably received.

ELEMENTARY STUDIES FOR ENGINEERS.—Under the title of "The Theory of Strains in Girders and Similar Structures, with Observations on the Application of Theory to Practice, and Tables of the Strength and Properties of Materials," Mr. LINDON B. STONEY, B.A., the engineer to the Corporation for Preserving and Improving the Port of Dublin, has just issued (through Messrs. Longmans) the first volume of a work which will be highly appreciated by engineering students generally. Mr. Stoney very justly observes that the references which have hitherto been made by writers on Mechanical Philosophy have been so brief and incomplete as to be of little practical use without further development, too frequently affording a pretext for the ill-concealed contempt which some practical men sometimes entertain for theoretic knowledge. "A thorough acquaintance with the theory of strains," says Mr. Stoney, "and the strength and other properties of materials, forms the basis of all sound engineering practice, and when this is wanting even natural constructive talent of a high order is frequently at fault, and the result is either excess and consequent waste of material, or what is still more disastrous, weakness in parts where strength is essential." The truthfulness of these remarks is certainly beyond question. The entire subject has been treated with the greatest care, and every detail and fact is given in the clearest possible manner, the book, as a whole, being one which is likely long to maintain a high position amongst the text-books recognised in the engineering profession.

CORNISH MINERS IN THE NORTH.—Several letters have been received at St. Ives from miners who have lately gone to Scotland from that neighbourhood. The men unanimously speak in grateful terms of their comfortable and comparatively well-paid situations, and urge their able-bodied friends to come North and share their improved condition.

THE ASSOCIATION FOR THE PREVENTION OF STEAM-BOILER EXPLOSIONS.—At the last monthly meeting of the executive committee of the Association, Mr. L. E. Fletcher, chief engineer, presented his report, of which the following is an abstract:—"During the last month 473 engines have been examined and 431 boilers, as well as two of the latter tested by hydraulic pressure. Of the boiler examinations 506 have been external, 5 internal, and 120 entire. In the boiler examinations 114 defects were discovered, 5 dangerous, thus:—Furnaces out of shape, 4; fractures, 5; blistered plates, 2; one dangerous; internal corrosion, 12; external corrosion, 16; two dangerous; internal grooving, 3; external grooving, 1; feed apparatus out of order, 1; water gauges ditto, 17; blow-out apparatus ditto, 13; two dangerous; safety-valves ditto, 5; pressure gauges ditto, 4; without feed back pressure valves, 32. The importance of strengthening the man-holes with mouth-pieces is shown by the fact that nine explosions, by which fourteen persons have been killed and six others injured, have recently occurred to boilers in which this precaution has been omitted. In each of these explosions the primary rent has started from the man-hole, and although in some cases the pressure of the steam has been considerably higher than it should have been, yet they have been materially promoted by the weakening effect of the unguarded man-holes, while others have been entirely due to that cause. In double-furnace boilers the mud-hole—which is placed at the bottom of the front end plate, and below the furnace mouths—forms a second manhole, and should be guarded with a mouth-piece. When this is omitted inconvenience is experienced from leakage at the joint, which not only disfigures the boiler, but induces corrosion. In many cases so wasting that the front end plate has to be cut away and repaired. With good mouthpieces, suitably got up, this danger is avoided. The explosions from Sept. 22, 1865, to Oct. 26, inclusive, numbered four, by which eighteen persons were killed and eleven injured. Not one of the explosions occurred to boilers under the inspection of this Association. I have visited the scene of the catastrophe of the two which were most disastrous—one which happened on Sept. 25, and resulted in the death of seven persons, as well as in injury to two others; and also one which occurred on Oct. 6, and by which eight persons were killed. Neither of these explosions arose from shortness of water or corroded plates. The former was an ordinary Cornish boiler. The boiler in the latter case was the external shell at a brittle plate. The boiler in the latter case was a small vertical one, internally fired, and most improperly equipped, having but a single safety-valve, whereas there should have been two, while the one with which the boiler was fitted was of a most dangerous construction. Also, the man-hole was not strengthened by any mouthpiece, and the boiler burst at that part. This is the second boiler of this class, and by the same maker, which has recently exploded with fatal results, so that it deserves serious attention."

LONDON GENERAL OMNIBUS COMPANY.—The traffic receipts for the week ending Nov. 18 was 10,388s. 2s.

BAGILLT OIL COMPANY (LIMITED),
FLINT.
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Notices to Correspondents.

* * * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

THE TYDDEN SHEPHERDS SLATE QUARRY.—Can any reader inform me what is the position of this quarry? It was reported at first as capable of paying dividends in two years with the original capital, but this has all been expended, and more borrowed. It is now more than 18 months since Mr. John Francis inspected the quarry, and he gave it as his decided opinion that dividends would be paid in twelve months. Why have not these results been realised? If I am rightly informed, the management is not so effective or so economical as could be desired. Perhaps someone connected with the company will forward some particulars to the Journal, for general information.—A SHAREHOLDER.

CENTRAL AMERICAN ASSOCIATION, AND THE CHONTALES COMPANY.—I am not the only shareholder who thinks that some explanation is due from the directors of both these companies with reference to the acquisition of the Javali Mine. The directors of the Chontales state in their report that "the Javali Mine had been unexpectedly purchased over their heads, whilst Capt. Bedford Pim, the Chairman of the Central American Association, distinctly assured the shareholders at the recent meeting that 'before purchasing the Javali Mine Dr. Seemann had satisfied himself that the Chontales Company were not competitors.' At the bottom of which mine doth the truth lay?—A SHAREHOLDER IN BOTH COMPANIES.

CHINA-CLAY TRADE.—I will thank you to correct an error which appeared in last week's Journal, under the heading of "Ramble through the New China-Clay District." At Deri Clay Work it should be 3s. per ton carriage, and not 9s.; at Wheal Annie the price of clay should be about 30s., and not 20s., as stated.—CHINA-CLAY.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, NOVEMBER 24, 1866.

The report from the "Government Statist" of South Australia had been laid before the Legislature just before the departure of the last mail, setting forth the progress made in the different departments of the colony. It is a very important and interesting document. It deals with every branch in an elaborate and business-like style; but the late hour at which it has reached us renders it impossible to give more than some general outlines until our next issue. We find, first, that the population numbers 156,605 souls, of which 80,686 are males and 75,919 females, and that the increase in the census during 1865 was 9264 persons, which was much greater than had occurred for many years, being 64 per cent., as compared with 5 per cent. in 1864, and 34 per cent. in 1863. The excess of immigration over emigration was likewise greater in 1865 than during the previous ten years, the addition being 4766 persons, of whom 2649 were males and 2117 females, and of this total 4625 were immigrants at the public expense, so that only 141 were added to the community from beyond seas over and above the Government arrangements.

With reference to the revenue, we find there was a remarkable increase in 1865 in every source. The total for the 12 months amounted to 1,089,128s., as compared with 775,837s. in 1864, which was an excess of 313,291s., or 42 per cent. There had been a great demand for land, the report continues, and at high prices, so that the sales were brought up to no less a sum than 504,677s., which was an augmentation to the figures of 1864 of 256,672s., or nearly double the amount of the previous 12 months. The Customs revenue was also of larger extent than previous years, and, as this is the only tax, it is more interesting to make remark thereon. It produced 240,183s., about one-fifth more than in 1864, being at the rate of 30s. per head of the population, and which is lower than that imposed upon any other Australian community. The money derived from the occupancy of Crown lands had advanced to 73,891s. from 48,361s.—about 50 per cent. increase; and this is attributed to the fact that the augmented rents under the new pastoral leases had become due. Railway receipts were of a corresponding character. They had advanced from 118,307s. in 1864 to 134,070s., an excess of 15,763s., or nearly 12 per cent.; 402,550 passengers had been conveyed over the two lines, against 353,035 in 1864, and the total goods traffic was 261,183 tons, against 255,928 tons in 1864. Under every head, indeed, there was marked improvement, and each and all indicate considerable activity and progress.

The national or bonded debt of South Australia is set down at 751,600s., which is equal to 47. 10s. per head on the population; but the comparison with the other portions of Australasia are striking. For instance, New South Wales, with a population of 421,000 souls, has a debt of 5,638,530s., or 13s. 8s. per head; Victoria, with a population of 632,998s., has a debt of 8,733,445s., or 13s. 16s. per head; and Queensland, with a population of only 95,100, has a debt of 3,021,186s., or 31. 15s. per head. "These figures, therefore," says Mr. Duffield, the Treasurer, in his speech in the House, when introducing the financial question, "show that if ever there was a colony that ought to progress South Australia is the one. It is not taxed to anything like half the extent of Queensland, and the Government might borrow three-quarters of a million more money, and still owe a million-and-a-half less than that colony with its population of less than 100,000 people."

The particulars as to the Banks are valuable in estimating the advance making in every branch of commerce in South Australia, and are the more particularly interesting at this moment, when so much attention is given to everything connected with monetary operations. The average liabilities of these establishments were, collectively, one million sterling in 1863, but in 1865 they were two millions sterling, while the assets were 2,000,000s. in 1863, or double the liabilities; but in 1865 they were 3,000,000s., against 2,000,000s. liabilities. During the year 1865 the assets increased from 2,361,300s. to 3,031,705s., or by the sum of 670,405s., whilst the liabilities advanced from 1,498,473s. in 1864 to 1,947,217s. in 1865, or by 448,744s. only. The deposits during the twelve months had increased largely, which is another most important feature. They reached 1,568,151s., which is an addition of 409,220s. in the year; and the discount had advanced to the aggregate of 2,424,924s., which is an excess over the previous twelve months of 700,165s. The value of notes in circulation was 340,512s., being an advance since 1863 of 108,031s., while the amount of coin, bullion, and Government Securities held by the banks had increased in a somewhat less proportion—from 331,475s. in 1863 to 450,596s. on Dec. 31, 1865.

Notwithstanding the depression in trade, there was a steady increase in the number of depositors in Savings Banks. In this particular the returns are made up to the end of August of this year, when they numbered 7375, which was an increase since Jan. 1 of 299; but the money paid in during the eight months was only 91,567s., against 108,970s. withdrawn. Notwithstanding this, the total funds in these banks was 265,782s., or more by 60s. 4s. than for the first nine months of last year, and gives an average of 31s. 5s. to the credit of each of the depositors.

With reference to the protracted drought, which has had such serious effects on the enterprise of the colony, the returns are made up to the end of June of this year, all other statements, excepting as to Savings Banks, being to Dec. 31, 1865, when it appears there were 46,835 head of cattle less than in the previous year, whilst the decrease in sheep and lambs was not less than 326,922, or 9 per cent., in lieu of the average increase of 5 per cent., so that the colonists had become importers instead of exporters, and it would necessarily require some time before the country could recover its usual position in this respect. The depression in trade and commerce engendered by the drought and other causes had told materially on the exports, "and,"

says the treasurer, "had it not been for the mines matters would have been still worse." Unfortunately, no statistics on this latter are given either in the speech or the report, which is an omission to be regretted.

The export and import trade combined amounted to more than six millions sterling in 1865, which is double what it was ten years ago. The export of staple produce alone had increased to the extent of one million, or 45 per cent., and the total imports of 1865 were one-fifth in excess of those of 1864. It is stated that during the twelve months the colony imported goods equal to 167. 6s. per individual, the rate of 1864 having been 147. 8s., all but a fraction being the production of the mother country and her possessions. There was a slight decrease during the year in the amount of business done with Victoria, but the transactions with New South Wales showed an increase of nearly 80 per cent. There is much useful information on agricultural and pastoral matters, and elaborate tables accompany the report.

THE FUTURE OF BRITISH AMERICA.

In last week's Journal we directed public attention to this subject. We offer no apology to the reader for again referring to a topic of so much moment as the mineral wealth of one of the richest sections of that great continent in the western hemisphere, which stretches from the Arctic to the Antarctic circle. We believe that we are fully justified in representing the British possessions of North America as not inferior to any portion of the United States. Canada is destined to become, ere long, the granary, not merely of British America, but of a large portion of the United States as well. And when communication is opened up, as we trust it shortly will be, with the Red River country and the great valley of the Saskatchewan, British America is not unlikely to become the granary of a large portion of the world. Into the vast domain that lies awaiting the presence of the husbandman there, as fast as facilities are afforded for settling it by the construction of the Intercolonial Railway from Halifax to Quebec, the widening and deepening of the Canadian canals, and the removal of obstructions from the passes and rivers, and lakes beyond, a tide of immigration is certain to set in that will yet make all that rich valley stretching away east from the foot of the Rocky Mountains towards the rising sun blossom as the rose. The coal mines of Nova Scotia and New Brunswick, the portion of this territory lying nearest Europe, are all but inexhaustible. Already, as previously intimated, the coal seams of Nova Scotia are being largely worked, and the products supply the United States' markets. Since our last publication, we have ascertained that, although not to so great an extent, yet capital in New Brunswick is being successfully invested in developing the resources of that fine province also. At Albert, in particular, most valuable oil coal and oil shale is produced, and the mineral is said to be among the richest and most productive in the world. It is exported in considerable quantities, and is in high demand. In other parts of New Brunswick coal is also obtained and coming into use.

In Canada coal oil is becoming a larger item of export, rapidly rivaling the Pennsylvania oil wells in its production and economic properties. It is in reference to these fine provinces, and with a view of consolidating them into one compact whole, that there are at this moment in England representatives charged with the responsible duty of settling among themselves, and with the British Government, the terms of an Act of the Imperial Parliament having that object in view. To witness a young nation springing, as it were, out of the loins of another, all the kindly relations of parent and offspring preserved and in full operation, is a sight the world has, perhaps, never before been privileged to behold. The old thirteen colonies left us chafed, angry, and, after a violent struggle, the remnant of the group eling to the father land with filial affection, and, while assuming national proportions and quasi national burdens, still refuse to listen to any propositions, no matter how plausibly put, which contemplate even proximate independence. Mr. Goldwin Smith, the able Oxford professor, drew down upon himself from all the colonies the strongest animadversions, because he foreshadowed an early future of that character as their manifest destiny. It may be, probably, a great experiment, but the people of England are evidently prepared to furnish the colonies all the legislation they can desire to carry out their grand confederation scheme. As Sir Strafford Northcote announced recently at Liverpool, they are prepared "to meet them half-way—ay, more than half-way," meaning, as we interpret it, that every reasonable aid shall be furnished consistent with the resources and dignity of the empire. The Fenians have inflicted upon these provinces great injuries and serious losses by their recent raids, and their threats of further invasion. Manfully have the colonies resisted, nor have they refused to accept a gage, and fight battles they never provoked. It is, therefore, alike the duty and the interest of the empire to give these provinces all the reasonable support they may from time to time require to maintain themselves as integral portions of the empire, requiring only in return that they, too, shall contribute as British Colonial subjects to the common cause according to their respective means.

THE MINERAL RESOURCES OF THE RHINE.

If British capital is to be employed at all in connection with the development of foreign mines, those countries near at home are, beyond question, more entitled to consideration than those whose distance renders them less easy of access. Germany and France have each the advantage that, if it be thought desirable to have the mines in which one's capital is embarked inspected, the work can be performed in two or three days, and at a trifling cost, whilst if the mines be situated across the Atlantic the time required will be often as many months, and the attendant expenses greater in a corresponding degree. In France and Algeria the field for the profitable employment of capital is well worthy of attention; but in Germany there is the additional recommendation that in the mining districts there already exists a population accustomed to mining work, that the laws are particularly favourable to the success of mines, and that the cost of labour and management is as low as could be desired.

The Rhine Province and Westphalia are essentially the mining districts of Prussia, and the excellent results which have attended the development of the mines in those districts during the past few years have caused Rhinish and Westphalian mines to be regarded with much favour. It for some time seemed as though profits were only obtainable with German capital, but this was in consequence of the Anglo-German enterprises being solely in the hands of those who sought profits from the companies rather than the mines, and the results which have now been continuously obtained for some years by British managers has completely demonstrated that there is an abundance of mineral property which is capable of yielding excellent profits, either to Englishmen or Germans, and that with a very moderate outlay, provided there be ordinary judgment in the selection, and energy and integrity in the development and management of the mines. Taking the line of the Cologne and Geissen Railway as the boundary, there is an enormous and valuable mining district, extending for many miles, and containing within it all the elements required for creating one of the most prosperous localities known. Near the boundary referred to are the rich and highly prosperous works of the Phoenix Company, adjoining which is the great ironstone property, not yet worked; and on the Cologne side of this is another large ironstone property, formerly belonging to the same parties, upon which, however, comparatively little has been done.

For the establishment of ironworks on the English system, the Siegburg district has hitherto laboured under a disadvantage, owing to the absence of coal—the lignite of the district, although excellent for gas-making purposes, as well as for roasting the ore, and other minor purposes, being unsuited for use in the blast-furnace. The operations of the managers referred to, however, have caused the coal trade of the locality in question to assume an altogether different aspect. They turn out almost as much coal daily from each pit under their management as was formerly produced in the entire neighbourhood; and, with the energy natural to Britons, they do not permit the markets within easy reach to remain unattended to for the want of furnishing a proper supply. Indeed, there is little doubt that, were it decided that even every mine upon the great "complex" adjoining the Phoenix should be worked, there are many collieries within reach which would readily undertake a seven years' contract

to supply an adequate quantity of "steinkohle" for carrying them, and as this property comprises no less than 81 mines, and extends over 20,000,000 square fathoms (about 50 square miles English) it is obvious that the development of the "complex" would be of mutual advantage, and would be a good field for investment if properly developed.

The position of the Siegburg mines is even at present admirable, being bounded by the Sieg and Sulz (tributaries of the Rhine), traversed by four macadamised roads, and within half-a-dozen miles of the Rhine itself; whilst there is a railway projected from Bonn to Frankfort-on-the-Maine, which will pass completely through the "complex," and connect the coal district of Hagen and the neighbourhood with Siegburg, and thus, by securing an abundant supply of coal on the property, at a price only a few pence per ton above that ruling at the pit's mouth, enhance the value of the property to an extraordinary degree, and afford facilities for extending business operations to any desired extent. The nature of the minerals found, and the proposed mode of dealing with them, will form the subject of a future notice.

THE COAL AND MINERAL MINES OF BOHEMIA.

In the *Mining Journal* of Nov. 10 reference was made to the wealth of coals and minerals in Bohemia, and especially to the districts of Falkenau, Komotau, and Eger, when it was stated that a company is now forming for the purpose of purchasing and working the Hochberger Estate and Company. The annexed is an extract from the *Bank-und Handels-Zeitung*, a well-known paper, edited at Berlin, and dated Nov. 10, which fully bears out the assertion in respect to the increasing popularity of Bohemian mines, and the great demand for Bohemian coal:—

To facilitate the import of coal from the Rhine and the Saar, and for the purpose of obtaining this precious article, which is so important for the development of industry in South Germany, all the States whose borders touch these mines have agreed to the introduction of the "Pfenning" tariff (a pfenning is about the tenth part of one penny English), with the exception of Baden. In consequence of this refusal the Württemberg Chamber of Commerce, at its recent general meeting at Heilbronn, have petitioned the Württemberg Government to accede to the pfenning tariff without waiting for Baden's adhesion. Probably the Baden Treasury may thereby obtain some advantage, but certainly not the industrial interests of the whole German nation. A great many coals are not obtained from Bohemian mines, instead of from the Saar and Ruhr, and even large capitalists in Württemberg have now felt induced to direct their requirements to Bohemian mines, as the Bohemian and Bavarian railways offer cheaper rates of transport. It is, therefore, hard to say whether Baden will in the long run not lose more than gain.

It, therefore, appears that Bohemia is destined to become one of the most important countries in Germany, and a pearl in the crown of the Austrian Empire. A well-managed company, directing its attention to good mining property in that country has every probability of being successful in enriching its shareholders, as well as being instrumental in promoting the comfort and prosperity of the inhabitants of the neighbouring provinces. It may be naturally enquired by English capitalists—Why, then, do not the monied people of Germany undertake the development of such valuable property? The reply to this is simple—Because there is a decided lack of enterprise in the country, as well as a thorough ignorance of joint-stock undertakings.

THE UTILISATION OF SODIUM IN GOLD AND SILVER AMALGAMATION.

Owing to the comparatively limited number of gold mines in this country, but little attention has hitherto been paid to the question of sodium amalgamation, and the failure of the process at the one or two mines has been accepted as conclusive that the use of sodium in the treatment of gold and silver ores is practically inapplicable. In America, however, where the mines of the precious metals are more numerous, and where the disposition to give a fair, indeed more than an impartial, trial to everything novel is far greater than in this country, the case is different, and quite an animated controversy as to the merits and demerits of the process has for some time past been going on. We have been favoured by Professor HENRY WURTZ, of New York, the gentleman to whom the honour of having discovered the sodium process is now generally conceded, with an interesting communication on the utilisation of sodium in gold and silver amalgamation, which is given *in extenso* in another column of this day's *Journal*, as well as an abstract of the paper read before the American Institute for the Advancement of Science, by Prof. WURTZ, and the letter of Mr. GUIDO KUSTEL, which called forth the remarks. The whole subject will thus be placed at one view fairly before the readers of the *Mining Journal*, and the knowledge of what has been done in the United States may enable those interested to apply the process more profitably in connection with the working of gold in Wales.

Alluding to the controversy, Prof. WURTZ writes that it happens that "a gentleman whose name stands high as a metallurgist, Mr. KUSTEL, of San Francisco, has apparently conceived a prejudice against the use of sodium upon silver ores, and some, or all, of his articles have found, or may find, their way into your columns. I have, therefore, deemed it desirable, in view of the immense interests in silver mining owned in Great Britain, to send you briefly some of my own views regarding the application of sodium to silver amalgamation. I have thought that your readers might be more interested in the subject if they have before them at the same time Mr. KUSTEL's views. I have, therefore, enclosed a copy of Mr. KUSTEL's last criticism upon my communications to the scientific world, and have framed my own article of a reply thereto."

IMPROVED SMOKELESS FURNACE.—The peculiar feature of the furnace manufactured under the combined patents of Messrs. VICARS and Messrs. WILSON and SMITH consists in the motion given to the bars to obtain a progressive movement of the fuel from the front to the back or bridge end of the furnace. This is effected by moving the bars in a mass towards the bridge, and bringing them back in detail. The bars have a travel of about 3 in. per stroke, and make a stroke in about four minutes, which causes the fuel to travel about 3 ft. per hour. The rate of travel is adapted to the work to be done. When the furnace is very wide, instead of moving the bars forward together, they move each side of the furnace of half the bars alternately. The action of the furnace is the same as Juckes', but obtained by much simpler means, rendering it applicable to any class of boiler, whether fired internally or externally, as, instead of the endless chain used in Juckes', there is only a plain bar within the furnace. The mechanism, too, for imparting motion is of a very simple kind, and is not exposed to any heat that can injure it.

DONKEY STEAM-PUMP.—As a substitute for Giffard's Injector, Messrs. BROWN, WILSON, and Co., of Cannon-street, and the Vauxhall Ironworks, are introducing an improved Donkey Pump, which it is claimed has the advantage over that well-known instrument that it can pump boiling water, and draw from a depth of 15 ft., or even 30 ft. if required. The pump has no part liable to get out of order, and all are made of steel, hardened and polished; the cylinder and pump are in one casting, and bored throughout. The whole engine may be taken to pieces and put together under steam in 15 minutes, and without disturbing any pipes whatever. The pump has much to recommend it, and will be fully described in a future *Journal*.

AUSTRALIAN GOLD.—The receipts of gold from the Australasian group of colonies appear to be sensibly reviving, having amounted in Sept. to 686,777, as compared with 238,556, in Sept., 1865, and 405,613, in Sept., 1864. In the nine months ending Sept. 30, this year, the total value of the gold imported from the Australasia was 4,633,371, as compared with 2,155,232, in the corresponding period of 1865, and 2,421,722, in the corresponding period of 1864. It may be interesting to recapitulate the imports of gold from Australia during the eight years ending 1865:—1858, 9,064,763; 1859, 8,624,566; 1860, 6,719,000; 1861, 6,331,225; 1862, 6,704,753; 1863, 5,995,368; 1864, 2,656,971; and 1865, 5,051,170. The discovery of gold in Australia excited fears, it will be remembered, in 1851, 1852, and 1853 that there would be a great depreciation in the value of that metal, a contingency which has not been realised in the least, although since those eventful years New Zealand has become

a gold-producing centre. The deliveries of gold from the Australasia this year promise to come up at least to the receipts in 1862 or 1863.

THE NICHOLAS WOOD TESTIMONIAL.—The course resolved upon at the meeting of subscribers at Newcastle has been already noticed, and from the excellent list of subscriptions already received (advertised in another column of this day's *Journal*) it will be seen that there is no doubt of the project being satisfactorily carried out. It is estimated that the amount required will be from 5000*l.* to 6000*l.*, and of this rather more than 1600*l.* has up to this time been subscribed. Although the Institute with which Mr. Wood was so closely identified is essentially a local society, its labours have always been availed of by mining engineers throughout the kingdom, and for the solution of many of the most difficult practical questions connected with mining operations it is to the North of England Institute of Mining Engineers that the credit is due. Under these circumstances it is but reasonable to hope that when so excellent an object as the erection of a memorial to its first President is proposed the engineers in all parts of the kingdom will give their support. As the character of the Hall will necessarily depend upon the amount at the disposal of the committee, and as it is most desirable that ample provision should be made for the subsequent establishment of a Mining College, connected with the University of Durham, all who seek to elevate the mining engineers' profession should use their best efforts to make the Nicholas Wood Memorial a success in every sense of the word.

MISREPRESENTATIONS IN PROSPECTUSES.—In the case of the Estates Investment Company (Limited), it has been decided by Vice-Chancellor Wood that a prospectus must not contain any untrue statement of existing facts, and as he finds in this case misrepresentation to have taken place, he has decreed a return of the deposit money paid on the application for shares, and the removal of the allottees' names from the register.

RIGHTS OF TENANTS OF THE DUCHY OF CORNWALL.—A special case of considerable importance in connection with mining (Hill v. Gard and others), from the Cornwall Summer Assizes, 1865, was heard in the Court of Queen's Bench, on Tuesday. The question raised was whether the tenants of the Duchy of Cornwall have a right to commit trespass for mining purposes in lands not within their sets. The defendants represented the Old Gunnislake Mine, and claimed such a right. The case was argued by Mr. Karslake, Q.C., and Mr. Bere (instructed by Mr. Eales, of Exeter), for the plaintiffs, and by Mr. Lopes (instructed by Messrs. Bridgman, of Tavistock), for the defendants. The Court decided against the right.

MINING, METALS, AND MINERALS—PATENT MATTERS.

By M. HENRY, Memb. Soc. Arts, Assoc. Soc. Eng.

The published specifications of patents relating to metals, minerals, and the mining and metallurgical arts have not been so numerous this week as usual; a large number of the week's specifications relate to another, and certainly scarcely less important, staple manufacture of Great Britain—viz., the textile arts. This branch of industrial labour and the manufacture of fire-arms constitute the majority of the subjects of the specifications of the week. The following, however, may be interesting under the usual heading which is prefixed to this article. Among recently-filed specifications is one relating to a patent to which a paragraph in the *Mining Journal* made allusion some months ago—viz., MARCAIS' patent for obtaining tin from scorias, slags, alloys, and other compounds of tin. A longer account of this invention may, perhaps, be given at some future time. The distinctive feature of the process consists in raising the scorias compounds or other matters to be treated to a high temperature, say to cherry-red heat, and then subjecting them to the action of a current of hydrochloric acid gas, whereby the tin is separated from the other bodies with which it is combined; and the process also permits of the separation and collection of precious metals and other matters which may be found combined with the tin in slags, scorias, alloys, and compounds. The inventor does not restrict himself to the use of any particular apparatus, but he describes in detail one arrangement, which he considers especially suitable, and which may be generally explained as consisting of a combination of three furnaces—one for producing the hydrochloric acid gas, the next for increasing its temperature to an elevated degree, and the third for bringing the heated gas into contact with the heated metallic masses wherefrom the tin is to be obtained. The inventor further recommends that the materials shall be reduced to a state of powder, and then brought into a condition of lumps or masses, in the same manner as is done in the manufacture of patent fuel. The specification of this invention was drawn and filed by Mr. Henry, patent agent, Fleet-street, relates to Mr. BLECKMANN'S patent for blasting powder (a communication from the inventors, Messrs. Fehleisen, of Cilli, in Styria). This powder, which the inventors describe by the designation of haloxylin, has obtained considerable success in the Austrian dominions. From this compound sulphur is excluded, and the composition consists of a combination of wood or other cellulose substance with charcoal and nitrate of potassa. To these, ferrocyanate of potassa may also be added. These ingredients are well pulverised. The proportions in which they are to be used are—9 sawdust, 3 to 5 charcoal, 45 saltpetre, and when the ferrocyanate is used 1 part of that salt. The materials are moistened, crushed, and reduced to a homogeneous mass, then re-moistened, made into a cake by stamping or pressing, and then broken, pulverised, sifted, granulated, and dried. The ferrocyanate is only used when a sudden explosion is to be produced. The powder is only exploded by the application of strong heat or flame, and not by ramming, impact, or percussion.—LEFOTRE POLLET has communicated an invention to W. E. Gedge for applying metallic substances to thread in the following manner:—When the thread is in hank it is arranged as if it were to be printed, and in that condition metallic substance is applied to it by the means now used for depositing metal on a manufactured fabric, and the thread is then spooled, or a warp may be used and the metal applied.—PARDOE, who patented some improvements in coke-ovens about two years ago, has specified some additional improvements in the subject. In these improvements side flues are made in the side, or partition walls of a series of ovens; such flues open at top into the oven, and at bottom into flues below the bottom of the group. By these means the sides are uniformly and intensely heated by the waste heat, and the heat from the ovens is transmitted into the batch of coke. When the invention is applied to the production of volatile hydrocarbons and coal oils, as well as of coke, every alternate oven is made into a retort, or closed chamber, and these are heated by the products of combustion passing from the adjacent coke-ovens. A patent of the same subject has been taken out by W. B. and E. J. COLLIS, and the specification announces that the invention has reference to the ovens patented by Pardoe and Hicklin in the year 18-4. In this specification, filed about 18 months ago, a group of ovens was described having a common system of flues. The improvements described by Messrs. Collis have for object to adapt the ovens for being better charged through openings in the top, and to admit of the ovens being modified to suit the requirements of the various coking districts. For this purpose, the series of top flues proposed by Pardoe and Hicklin are to be dispensed with, and communication between the ovens and the bottom flues is made by side flues, arranged vertically, zig-zag, or diagonally in the side walls of each oven of the group, and opening into the ovens near their top. Retorting-valves, or dampers, may be used. What is claimed is the employment of a common system of bottom flues with which each of the ovens communicates at or near the top by means of side flues in the partition walls. Both these specifications—Pardoe's, just cited, and Collis's improvements—appear to relate to the employment of side flues in the partition walls of furnaces arranged according to Pardoe's plan.

JAVIS, of Swansea, proposes to obtain and apply caustic alkalis; he uses such alkalis for distilling atmospheric air, and for preventing smokes from decomposing substances; he employs cradles for distributing alkalis, with or without charcoal, in mines and elsewhere; and he uses carbonic oxide gases, liberated from limestone by the process of firing, for converting iron into steel, and also for improving manures. As respects the conversion of iron into steel, which is a subject more immediately concerning the present object, the patentee proposes to employ the carbonic oxide gases liberated from limestone, with or without the use of potash, for reducing the limestone to a caustic condition; he says that for this purpose "the gases require to be forced from the bottom upwards through the metal whilst in a condition of fluidity, in a similar or any other manner to that in practice under Bessemer's patent, for the equal distribution of atmospheric air in contact with molten metal, absorbing as it then would its due proportion of carbon; graphite would be formed; the refuse with which the metal is contaminated becoming by the process discharged on the surface as scoria, and a confirmed fibre would be established, and the metal being converted to the condition of a peroxide, the iron would thus be turned into steel."

Although the following provisional specification does not relate to metals or minerals directly, yet it concerns them as respects the application of the metallic arts to industrial and commercial purposes, and it is difficult to understand on what grounds proprietary protection was refused herein. GEDGE applied for a provisional protection for a combined arm-chair and travelling bag (a communication from L. P. Quéteanu, of Paris). The invention, which has for its object an arrangement which would really appear to be conducive to the comfort of railway and steamboat travellers, consists in making a frame of angle-iron, with bands of metal or wire gauze supporting the cushion or seat. The travelling bag is a pocket with one or more compartments fixed behind the back of the chair. The arms of the chair are fixed to the seat by uprights, and attached by hooks to the back. When the article is folded the bag touches the bottom of the seat.

DAHNE, of Swansea, and THOMAS, of Cwm Avon, Talbach (we are glad that we have only to write, and not to pronounce, the name of this locality), have applied for a patent for improvements in picks and mandrills for cutting coals and other minerals. MARSTON, of New York, has applied for a patent for carving metal, wood, marble, and other materials to the shape of a pattern.

The following also have applied for patents:—H. LAMPSON, connecting ends of metal bands for bales.—DAWSON, consuming smoke and saving fuel.—GRUBE, of Berlin, for decorating gold and metals, &c., called "Grüne's proceeding," proceeding being, no doubt, an amphibious word of the Anglo-

German phraseology, which seems so delightful and expressive to some literary men, but which means, if we may venture to interpret, the ordinary English word "process."—LIVSEY, of Westminster, has applied for a patent (as a communication from Blaire, of Pittsburg) for refining cast-iron.—JOHNSON has applied for a patent (as a communication from Wright, of New York) for stamping, crushing, and pulverising ores and hard substances.

The following applications may also be cited:—HOPSON and BROOKS, compressing, founding, and pointing wires or rods to form pins and other metal articles.—BOUSFIELD (communication from Dr. Elmer), manufacture of gases for producing heat, and their application to metallurgical purposes; also for treating sheet-iron plates to prepare the same for being coated with zinc for making galvanised iron and imitating Russian iron (a communication from C. H. Perkins).

Sweden has furnished us with another patent relating to the metal manufactures, in which that country takes so high a rank. GORANSON, of Gefle, has sealed his patent for blast-furnaces and making iron therein.—THOMAS and PRINCE have sealed a patent for treating scoria and slag of copper ores, iron pyrites, and other ores, and for reducing titanite iron ores; and C. T. HILL has sealed a patent for rolls for rolling metal.

REPORT FROM SCOTLAND.

GLASGOW, Nov. 21.—We are now getting into the flattest weeks of a year which has been characterised by anomalies of a singularly disorganising nature. The mysteriously introduced combination which resulted in the "rig" of a few months ago, and which was followed by a most depressing revulsion, has hung like an incubus over the market ever since, and neither the cheapening of money, nor the reduction of the stocks in store, nor the curtailment of the produce, can impart to the market more than a passing elasticity. The recent revelations of the *modus operandi* of the "rig," and the confederacy who formed the operators on 'Change, brought a private vote of censure on two members of the Glasgow Stock Exchange, for being concerned in the "rigging" transactions of the Grand Trunk Railway of Canada, which also came in for a playful share of their patronage. During the week the Pig-Iron Market has shown few signs of animation, and the price has varied between 53s. 7½d. down to 53s. 3d. prompt cash. The shipments, however, do not, in the aggregate, look as if less than an average business were doing, as they were, for the week ended yesterday, 11,378 tons, against 9300 tons in last year. Were it not that last year's shipments were exceptionally large, the comparison on the year would tell with greater effect when put into juxtaposition with last year; but as the shipments for the months of last year to date were 615,230 tons, as against 529,285 tons in the same months of this year to date, this year shows a decrease of 85,945 tons. To-day the market is still without life, 1500 tons only done at 53s. 3d. cash buyers; sellers 53s. 4½d. Malleable iron has not been in so depressed a condition for very many years, and the Glasgow Iron Company have lying in a corner of their yard not less than 100,000*l.* worth of puddled bars waiting on orders. Bars are in rather more demand, but shipbuilders' iron is neglected, the Clyde yards being rather short of orders, although a contract or two are finding their way here at intervals. Foundry iron is fairly in demand, but prices are not tempting.

Coals have given way slightly in price this week, the shipping demand having lessened with the closing of the northern ports, and with the quantity of coal brought into competition in the market by the ironmasters, who cannot otherwise dispose of it on account of the stoppage of a number of their furnaces. The quantity shipped this week was only 19,755 tons, while in the similar week of last year 25,850 tons were shipped. It is reported here, in the inner commercial circles, that the proprietors who purchased Young's Paraffin Oil Works, at Bathgate, and are now working them, are very much dissatisfied with their bargain; and it is said that Mr. Young, previous to leaving to spend the winter in the South of Italy, offered to purchase all their 100*l.* shares at 70*l.*, or to give up his for a like sum. It is even hinted that the terms of the lease may yet be adjusted in the Parliament House, Edinburgh.

A mining engineer is to be appointed to examine in the most thorough manner the probable results that will flow from the discovery of Albitrite at Strathpeffer. The Duke and Duchess of Sutherland visited the place where a bore had been sunk.

ANGLE IRON v. TURNED FLANGES.—Last week the local correspondent of the *Engineer* reported that "Mr. W. Wilson, of the Lilybank Boiler-works, is now constructing stationary boilers of large size, with flanged plates bent to easy curves, instead of using angle iron. This is a step in the right direction, which we hope to see imitated by other makers." To this Mr. Robert Penman, foreman boilermaker at the Camachie Foundry here, replies, through a Glasgow contemporary—"I am surprised that any man pretending to be a boilermaker should attempt to make the public believe that it is anything new. There is not a respectable boilermaker of any standing in Scotland who has not for many years been making boilers on the same principle. I consider it degrading to the trade that such parade should be made about a plain and long-practised mode of doing work. Our English brethren, judging from these notices, may well suppose that we are far behind in boilermaking."

REPORT FROM NORTHUMBERLAND AND DURHAM.

NOV. 22.—There is no change to notice at present in the general state of the Coal Trade here. The house and steam coals continue good, but there is room for improvement in the coking qualities, and also in the trade for manufacturing coal.

The notices of intended applications to Parliament for leave to form railways, docks, &c., in this district, show most clearly that trade and commerce are rapidly increasing. The most important of those schemes are the extension of the Northumberland Dock and other important works by the Tyne Commissioners, and also the branches, staiths, &c., intended to be constructed by the Blyth and Tyne Railway Company. One of the most important branches is that projected from Gosforth to Newburn Parish, north-west from Newcastle, as this line will give ready means of transit for coal and other minerals from that important part of the coal field to the deep water docks on the Tyne. This has long been a desideratum, as the main outlet for this coal has been by means of keels on the river. A short line is also projected from Ryton to Heddon-on-the-wall; this is to form a junction with the Carlisle line at Ryton, and is required for a similar purpose to the last-mentioned branch; but the range of this last branch is so very small that an extension of that from the Blyth and Tyne to Heddon-on-the-wall would apparently serve the purpose much better. Other additions and extensions are projected by this enterprising and prosperous company—a branch to the Cambois new winning, and also a branch to Warkworth.

The Northumberland Central Railway is not prospering; the line, it appears, at present is not to be constructed beyond Rothbury. It seems that dissensions among the landed proprietors are the main cause of the little success this project has yet met with.

The ironworkers' strike now rapidly approaches a solution; the men are rapidly falling in at most of the works. At Gateshead all of them have gone in at the extensive works of Hawks, Crawshaw, and Co., and also at Abbots. It is expected also that the Jarrow men will shortly be in. Of course, complaints of want of orders are pretty general, and on this account the men are not at all eagerly employed by the masters as yet, but when the strife is once ended, orders will be more eagerly looked after, and, therefore, we may expect an improvement in the general state of trade here shortly. On the whole, the strike has passed quietly off; there has been little rioting, and it is hoped that all bitterness will speedily pass away, and the men and masters will go on as before.

With respect to the remarks of a "Colliery Engineer," in last week's *Journal*, I quite agree with him that "it would be most unfair to question the accuracy of figures given on the authority of an Imperial Chief Engineer of Mines, and certified by eight or nine other engineers." I have no doubt whatever the account given of the performance of Lemielle's machine is substantially correct, and it must also be conceded that the quantity of air extracted exceeds the quantity that can be extracted by a furnace under similar circumstances—that is, shafts of equal area and of slight depth. But it does not follow that the machine is superior to the furnace in all respects and under any circumstances. I think "Colliery Engineer" will have seen that I do not assert anything of the kind, at any rate. I also agree with "Colliery Engineer" when he says that in dealing with "so important a question as the substitution of mechanical for furnace ventilation, every detail should be strictly enquired into." But I submit that he has not done this, for he has assumed certain dimensions which may be incorrect; at any rate, the areas ought to be rigidly known in dealing with such an important subject; but

should such a discrepancy exist as he suggests, I am not at all responsible, as I merely took the figures from the published account, which I believe to be correct. In conclusion, I will just suggest that air, as everyone knows, is a very elastic body, and, perhaps, the result he assumes may be due to the compression of the air within the apparatus. A water-gauge of 5.90 is equal to 223 lbs. per square inch—a very considerable pressure, and far exceeding what is met with in furnace ventilation.

CHESTER MOOR COLLIERY.—In two or three weeks the pumping-engines for this new colliery will be erected. The water flowing into the shaft has been too much for the present system of draining by tubs, although the latter lifted some 6000 gallons per hour. The new shaft, which is 12 feet in diameter, has been sunk to the depth of 30 fms. Coal is expected at 60 fms., which will soon be reached when sinking operations can be resumed. A number of colliery houses are being erected.

LARGE CASTING.—The second half of a large pumping-beam, for the owners of Harton Pit, has been cast at the foundry of Messrs. Murray and Co., Durham. The beam is 38 feet long, and 7½ feet in width at the centre. Thirteen tons of metal were used in the casting. The beam was cast by Mr. Ralph Harrison, the intelligent foreman moulder, who has in the course of the past quarter of a century produced some of the finest and most successful castings in the North.—*Durham Advertiser.*

REPORT FROM MONMOUTH AND SOUTH WALES.

Nov. 22.—There has been no real improvement in the Iron Trade of South Wales since last report, and business remains in the same depressed state as during the past few weeks. There has of late certainly been a change for the better in the demand from the United States and one or two of the other foreign markets, but this has been counteracted by the increased diffidence on the part of home buyers to enter into transactions, and the gradual closing of the long-pending and ruinous strike in the North has taken, and is likely to take, away some of the few orders which have found their way into the market. The reports from the leading works as to operations are, on the whole, satisfactory for the time being, but justifiable fears are entertained that unless a better feeling is evinced in the placing of contracts, the men will have to suffer from the want of the same regularity of employment that they now have. The fact is that future prospects are so uncertain and hopeless that makers would not be justified in stocking; even if they were so inclined, the present rate of wages paid, and the unremunerative prices at which iron is sold, would be a barrier to their doing so. At the new Clydach Ironworks the notice of discharge has been withdrawn, and the men will continue work as usual, in consequence of its having been decided to carry on the concern under inspection. Since the settlement of the medical and school question at Dowlais, the works have gone on satisfactorily; and among the more fortunate establishments of the district may be mentioned the Blaenavon Ironworks, where, for the past four or five weeks, the average yield of the six furnaces has been over 700 tons per week. For a long time past a westerly wind prevailed, which greatly impeded export operations, by the detention of vessels that were loaded ready for sailing. The wind, however, changed on Tuesday to a favourable quarter, and shipping iron has again become pretty active, especially on American account. A considerable quantity of iron is being cleared out for New Orleans and other Southern ports, and it is stated that a number of English houses have determined to supply iron direct to the Southern States, instead of sending it to New York, as heretofore. Transatlantic orders continue to come in with a fair amount of regularity, and it is more than likely that at the close of the year it will be found that the amount of business done this season with America will not fall far short of the expectations held by many at the commencement. The acceptance of the mediation of France and England between Spain and the South American Republics will be received with satisfaction, as the termination of hostilities will enable the Chilians and Peruvians to renew the work of developing the resources of their respective countries, not one of the least important aids in which will be the extension and formation of railways. Business with the Russian and Canadian markets keeps steady, and orders are gradually making their appearance. The Eastern trade continues quiet, and in transactions with the Continent there is no change to report. Buyers of pig-iron are quietly making their purchases for forward delivery. The long continued activity which has characterised the Tin-Plate Trade has slackened, and prices slightly given way; a reduction of 1s. per box has taken place. In the Steam Coal trade proprietors are busy, there being in the foreign and home trades an active demand. The cold weather has produced an increased request for house coal, and with the West of England and Ireland a good coasting trade is being carried on. Quotations are firm, with an upward tendency.

The men that were employed at the Gilvach Colliery are still out on strike, and they express their determination not to resume work until the overman is discharged. It is stated that a full account of the facts of the case has been sent to the directors of the company, who have been requested to interfere in the matter.

At the Monmouth County Court a farmer, named Musgrave, brought an action against Messrs. James and Greenham, of the Forest of Dean, to recover 15s., the value of a horse. The plaintiff rented a meadow belonging to the Countess of Dunraven, at Newland, and in Nov., 1865, he placed in it five horses. The defendants were working an iron mine, and the workings extended under the meadow. In consequence of the mining operations the ground sunk, and there were three or four large holes in the field, which were not fenced round. Into one of these holes, about 5 or 6 yards deep, the horse fell and broke its back. The plaintiff was unable to show that defendants were under covenant to repair the land in question, and he was non-suited, paying defendants' costs.

There are very few railway schemes to be brought before Parliament next session. In connection with this district, notices have been given of an intention to apply for powers to bridge the Severn at a point near Lydney, and the bridge is to be named "the Compromise Bridge," from the fact that it is promoted with the view of supplementing both the Severn Junction and the High Level bridges, already authorised by Parliament, and supported respectively by the Midland and Great Western Companies, but not as yet carried out. The shortening of the distance between the South Wales and Forest of Dean coal fields and the Metropolis and the West of England is the chief object sought to be attained, and it is generally agreed that if a bridge can be successfully thrown over the Severn the mineral traffic over it would be so large as to amply repay the capital outlay. To the two bridges already authorised it is objected that one is too high up the river to accommodate South Wales, and the other it is held would involve too great an expenditure. The Compromise Bridge is intended to cross mid-distance between the Severn Junction and the High Level, and it is intended that the outlay, including branches, will not exceed half-a-million of money, which is far below the estimated cost of either of the other two bridges. Messrs. Liddell and Ward are the engineers of the scheme.

The new works of the Oldcastle Iron and Tin-Plate Company (Limited), near Llanelly, are approaching towards completion, and the promoters hope to commence active operations about the beginning of the year. There is a forge and two mills, and it is proposed to start with about 120 hands and two mills, though when in full work there will be room enough for 300 hands. Mr. David Davies is the manager, the application of whose experience in the carrying on of the works augurs well for their proper management.

On Monday a moulder, in the employ of Mr. Richard Nevill, of the Wern Ironworks, Llanelly, was severely injured by a casting falling on him. He was taken up and properly cared for, and is now in a fair way of recovery. New spelter works on a very large scale are in course of erection on the Burrows, near Swansea, the property of Messrs. Shackleton, Ford, and Co., railway wagon manufacturers. An extensive trade will be carried on, judging from the preparations that are being made, and the range of building that is rapidly growing under the hands of the contractors.

Messrs. E. Boughton, Smith, and Co., of Pontardulais, are erecting four tin-plate mills and forges at that place, which will employ between 200 and 300 hands. The new works will be under the able management of Mr. O. Williams, who was formerly manager of the Morfa Tin-Plate Works, Llanelly, a post which is now filled by Mr. Tregoning. New works at Llansenech will also start in a short time, for the manufacture of tin-plates, Mr. Harris, one of the proprietors of the Tychon Colliery, and of the well-known Carnarvon Pit, being the proprietor.

The arrivals at Swansea include—the Wicand, from Caldera, with 155 tons of copper ore, for Richardson and Co.; Zelle Leontine, from Spain, with 150 tons of zinc ore, for Richardson and Co.; Diligent, from St. Brieux, with 20 tons of silver ore, for Bath and Sons; Notre Dame d'Espérance, from Bordeaux, with lead ore, copper ore, and pig lead, for H. Bath and Sons; Crocyden, from Hondeklip, with 562 tons of copper ore, for Richardson and Co.; and the Deer-slayer, from Caldera, with 490 tons of copper regulus, for H. Bath and Sons.

FOREST OF DEAN.

Nov. 21.—The SEWDLEY IRON FURNACES have for some time been in the market. They were built some 30 years ago by Mr. Edward Protheroe, late M.P. for Bristol, their erection costing upwards of 10,000l. They were substantially built of Forest stone. For some years the furnaces were successfully carried on by that gentleman, under the management of Mr. Broad. They were afterwards "blown out," and remained a number of years closed. Subsequently a Mr. Gibbons, of Staffordshire, became the purchaser, worked them a year or so, and then sold them to the Messrs. Gould Brothers, who on the 15th offered them again for sale at Gloucester. There was a reserve bidding of 4000l., and the only offer made was by Mr. Riddiford, solicitor, of 3000l. It is thought the works will be purchased by him.

On Saturday, James Jenkins, a "butty" collier, was killed while

working in a headway or stull at Mr. Walmer's new Stapleford Colliery. The coal, which is several feet thick, suddenly fell, and crushed the deceased to death. An inquest was commenced at the Albion Inn, Viney Hill, on Monday, before Mr. J. Teague, Coroner, and adjourned to Tuesday next, in order that the Home Secretary and Mr. L. Brough, Inspector of Mines, should be communicated with.

THE PAYS.—A multiplicity of evils arise from the present mode of paying the colliers and miners in this district. The greater portion of the men are paid by "gaffers" at public-houses, frequently at a late hour on Saturday evenings. Many have then to return to their homes, varying from one to five miles distant, through enclosures and bad roads. On Saturday night, it being "Mr. Crawshaw's pay," one young man was attacked by three men as he was going home. His money was demanded, and refusing to give it up he was knocked down and robbed of all he had, upwards of 5l. There was a second victim, who lost a similar amount.

RIGHT OF GALE.—A case was heard last week in the Monmouth County Court, before Judge Herbert, in which William James, of Oakwood Mill, was plaintiff, and John Howard, a mineral agent, of Clearwell, near Coleford, was defendant. The former was represented by Mr. T. G. A. Williams, solicitor, Monmouth, and Mr. Carter, of Newnham, for the defendant. Mr. Williams handed to his Honour the "Forest of Dean Award," in which it was shown, according to his argument, that the plaintiff was entitled to the Nockey Tump Level Colliery, in dispute. It would appear from the argument of Mr. Carter, the whole case rested upon the words "to the old workings." Mr. Goodrich Langham, of the Gavelier's Office, was then called by the plaintiff, whose evidence went to show that the property at issue was James's. He also produced a plan of Nockey Colliery. From the defendant's showing, it would appear he owned an adjoining colliery, the Chapel Mar, and the "old workings," through which the action was brought, was his property. After a long hearing, his Honour compared the plan on the application with that produced from the Gavelier's Office, and found them to agree with the evidence adduced for the plaintiff, and subsequently said he should reserve his judgment, and in the meantime he would communicate with the Commissioners. There are a great number of old collieries in the Forest of this description; they have been closed for many years, principally for want of capital and proper railway communication. It is thought that should the latter be advantageously supplied, much litigation will follow in the question of right of Forest gales, as formerly any person who felt disposed could take "his pickaxe and shovel" and commence a colliery, thereby claiming a gale.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Nov. 22.—The Iron Trade continues quiet, and it is pretty clear that we must wait until spring for any decided improvement. The lowness of stocks, however, causes small orders to come in continuously, and some of the works are engaged in the completion of the contract for best Staffordshire iron for the East Indian Railway Company. There is no decided change in the Hardware Trades. The last Australian mail brought very few orders, but the advices are more hopeful. It is satisfactory to be able to state that the East Indian markets, which have been so long depressed, are taking rather more hardware. The lock-out in the Staffordshire Potteries is happily over. As stated last week, the matter in dispute was that of annual hirings, which have long been the rule in the earthenware trades of North Staffordshire, but which have been much objected to, especially by the overmen and pressers. The masters insisted on the maintenance of the plan of annual hiring, on the ground that they have to make engagements, especially in reference to the foreign markets, for a considerable period in advance; and that they require a guarantee that wages shall remain the same, and that they shall be able to calculate upon a certain number of men to keep their works in operation. Thus ends what, if persisted in, would have been a calamity whose magnitude it is difficult to overestimate, and it is satisfactory to find that this has been obtained by the two parties meeting and discussing the difference between themselves in the proper spirit of mutual respect.

Mr. J. H. Davenport, of the Metropolitan Carriage and Wagon Works, Salitby, has been presented with a valuable gold Albert chain, as "a testimonial of his honesty, integrity, and business capabilities during his five years' connection with these works," having won the esteem and regard of every workman in the place.

MINE AGENTS' ASSOCIATION FOR SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE.—On Monday a very numerous attended meeting of mine agents of South Staffordshire and East Worcestershire (convened by circular) was held at the hotel, Dudley, the object of the meeting being to consider, in the first place, "The alterations proposed in the new code of colliery rules," by Mr. Baker, the local Government Inspector, previous to their being sanctioned and adopted generally by the masters, and for the purpose of considering the desirability of entering into a Mine Agents' Association of the whole body, for their mutual protection and aid, and for the discussion, from time to time, of matters relating to their practice." Mr. Job Taylor was voted to the chair, and briefly stated the objects for which the meeting had been called. The extensive alterations proposed by the Government Inspector were then read over, and discussed at great length, the meeting lasting upwards of four hours. Several objections were raised to some of the alterations proposed, and it was ultimately agreed that these objections should be laid before the Inspector and the trade before they were generally adopted throughout the district. A committee was then formed to draw up articles and rules for a Mine Agents' Association, by which periodical meetings are to be held for the discussion of all matters relating to their practice. The next meeting was fixed for Dec. 19, at the Hotel, Dudley.—*Wolverhampton Chronicle.*

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Nov. 22.—In North Derbyshire trade remains in about the same state as noticed last week, and so far as the coal business is concerned, notwithstanding that a considerable number of men have been discharged, there has been very little diminution in the quantity exported. The demand for coal for the London market continues active, as merchants appear desirous of having stocks by them in the event of a change of weather, which might induce a considerable run. There is no appearance whatever of the dispute between the masters and their men being brought to a conclusion, for the former appear determined on no account to submit to what they consider the dictation of persons who are in no way connected with them or with the district. On Saturday, in all probability, the men working at Springwell Colliery, who reside in the houses belonging to the Staveley Company, will have notice to leave them at the same time that their working notices expire, on Dec. 1. In anticipation of this, some of the leaders have applied to Mr. Senior for some ground at Whittington, on which to erect tents or temporary buildings, so that a new and primitive colony promises to spring up, the inhabitants of which have long enjoyed comfortable quarters, and comparative influence, which they appear determined to forsake for Union principles. Whether their families have been consulted does not appear, but it seems something very close akin to cruelty for them to give up good homes in the winter at the request of those who have never done them any good. It is truly a serious responsibility for those who have counselled and directed the men at Staveley, and it is to be hoped that the consequences will not at all come up to what is generally anticipated.

The Iron Trade in Yorkshire remains unaltered, with the exception that the men at two or three large firms who have been out for a short time, owing to their having refused a 10 per cent. reduction, have resumed work, having accepted the terms offered by the masters—terms which the present condition of the iron business rendered imperative. The demand for steel continues good, and makers of the finest brands, Bessemer in particular, continue to be well supplied with orders, not only for the plain article, but also for the manufactured, tyres and springs being in good request. Makers of pig are doing a moderate business, but with the exception of the works on the Trent the trade is by no means active. There is a fair enquiry for cold-blast iron, but one of the principal establishments have nearly worked out their own ore, and are, consequently, obliged to import from other parts of the district. The out-pit of coal continues large from the South Yorkshire district, a heavy tonnage of the Silkstone and Barnsley beds passing over the Great Northern for the Metropolis, and the drops en route. There is less doing for Lancashire, where the cotton trade is not so active as it has been—a fact that tells strongly on the exporters of engine fuel and slack.

The Thornecliffe, Chapelton, Westwood, and Tankersley colliers on Monday invited their employers to supper in a marquee near the White Hart Inn, High-green, in commemoration of the settlement of the dispute between them (which occurred a month or two ago, after a strike of nine months' duration); Mr. T. Normansell, secretary to the South Yorkshire Miners' Association, and Mr. Plimsoll, of Sheffield, were also present. Mr. J. Chambers was called to the chair, and, in addressing the company, said they would let bygones be bygones, and that he would do everything in his power to make them comfortable, and he hoped the men would do the same. Mr. Normansell moved, and Mr. Plimsoll seconded, a resolution which expressed a hope that a better feeling would in future exist with the Thornecliffe Company than had ever yet done.

The recent floods in Yorkshire have done a great deal of damage to the Swallow Hill Colliery, about four miles from Barnsley. It appears that during Friday night the water washed away an im-

mense quantity of the surface near to the colliery, making vast holes in the ground equal to the largest excavations for foundation purposes. Many thousands of loads of stuff were shifted, no small portion of which it is expected was swept into the pit. At present the whole of the workings, about 80 acres in extent, are filled up, whilst the water is up about 30 yards in the three shafts. Some months will elapse before it is cleared. Fortunately none of the men were in the workings, otherwise the consequences would have been serious.

The Lords of the Admiralty have entered into a contract with Messrs. Cammell and Co., of the Cyclops Ironworks, Sheffield, for the manufacture of 200 tons of rolled armour-plates, for the turret iron-clad ship *Monarch* (6), 1100-horse power, building at Chatham. The contract price for the plates is 29l. 18s. per ton. The manufacture of the engines and machinery for the *Monarch* has been intrusted to the firm of Humphreys, Tennant, and Co.

The recent notices in the press as to the results of strikes on the coal trade of the country have been the means of elucidating many important and even startling facts. The following review of the progress made in the principal coal fields of England will be read, not only with interest but with some astonishment also even by those most closely connected with the trade. From returns it is found that in 1853 there were 225 collieries in Northumberland and Durham, which up to 1864 increased to 235; in 1853, there were 123, in 1864, 153; in Lancashire, in 1853, there were 333, in 1864, 375; and in Yorkshire, in 1853, there were 276, and in 1864 no less than 422. The total increase for the United Kingdom and Ireland was from 2397 to 3265. It will be seen by the above figures, what appears to be something extraordinary, that the increase of new collieries, in Yorkshire exceeded that of the result? In 1857 there were produced in Durham and Northumberland 15,826,525 tons of coal, and in 1864, 23,284,367 tons, equal to about 36 per cent. increase. In 1857 Derbyshire and Nottinghamshire produced 3,687,422 tons, while in 1864, alone, in 1864, produced 4,370,750 tons; in 1857 Lancashire raised 8,565,500 tons, which was increased in 1864 to 11,589,000; Yorkshire, in 1857, gave 8,475,440 tons (being 309,940 tons more than Lancashire for the same year), and in 1864, 8,809,000, being 2,721,000 less than the produce of Lancashire for the same year. Surely these figures speak for themselves, and are worthy of serious consideration; unless, indeed, it is argued that the prosperity of a country increases in the same ratio as the value of its staple products decreases. If such is the case then Yorkshire is in an enviable position, for she stands alone with regard to the standard character of her trade. But to those who think otherwise, there has been no material addition to the quantity of coal raised in Yorkshire, whilst in other districts, where comparatively few new works have been opened out, the increase has been something enormous. Does it not show that some cause has been at work to retard the development of the mineral wealth of Yorkshire? What that cause has been is no secret. It is a patent fact that the strikes in the districts—a tendency to drive away the trade into places where there is comparative freedom from them, and where the coal is better, and in the course of time it is hard to say. In connection with such elections of coal from one district to another, it should not be forgotten that we export one-tenth of the coal raised in the kingdom into countries where there are vast deposits of the same, and where there is a large and poorly-paid population. In Spain, Saxony, Austria, Belgium, Prussia, and Russia, as well as other European States, there are immense fields of untouched coal only requiring opening out. What is required to bring them into working operation is what is to be found in England—men of enterprise and capital; and doubtless both will find their way into some of those places.

FOREIGN MINING AND METALLURGY.

The meeting of the Belgian General Railway Plant Company, held to consider the dissolution of the company, appears to have separated without coming to any definite decision. A "Cercle Industriel" has just been formed at Brussels, the object being to establish closer relations between engineers and industrialists. Railways, banks, mines, public works, and great industries will furnish the constitutive elements of the "Cercle," the founders of which appeal for assistance to Belgian provincial and even foreign engineers, who may become members of the new institution, and assist at its meetings. In 1865 the imports of English pig into Belgium attained a total of 24,864 tons, against 3372 tons in 1864. The exports of Belgian pig only amounted to 10,711 tons, showing a balance on the wrong side of 14,153 tons. This latter total represents approximately the quantity of pig entered free of duty under the arrangements of the law of 1846 on ware-houses. These totals refer to 1865, and this year the importations of English pig into Belgium are stated to have assumed a still more considerable amount. At Charleroi, as well as at Liege, the English arrive with casting pig at prices against which Belgian industrialists find it very difficult, if not impossible, to contend. A comparison of the years 1865 and 1866 will thus be, at least, as significant as those of 1865 and 1864. The comparative exhaustion of the stock of pig in England would, of course, reduce the exports from that country to Belgium; but this state of things is far from being realised. Meanwhile it will be readily understood that the Belgian pig market is in a very bad way, with depression. The rolling-mills sustain themselves better, although, as has been before observed, plates and merchants' bars have been more feeble for several days past. It is still impossible to give quotations with exactitude. The Roux rolling-mills will, it is said, not be sold for the present, although the subject has been under consideration. At the last meeting of the Forgemasters' Committee no action was taken on the principal question on the order of the day—the diminution of the production of the blast-furnaces. The La Haye Collieries Company, at La Haye, will pay, Dec. 1, a second dividend for the exercise 1865-6, or 1l. per share. Meetings are announced as follows:—Lava and Blanc-Misseron Mines and Ironworks Company, Nov. 30, at Antwerp; Ougree Collieries and Blast-Furnaces Company, Dec. 1, at Ougree; and General Railway Plant Company, Dec. 5, at Molenbeek St. Jean.

Advices from Havre state that that market is temporarily without animation; if Chilian has been rather firmer, holders show themselves much more reserved, and sellers obtain with difficulty the terms formerly paid; disposable and to be delivered are dealt in at 76l. to 77l. the article closing feeble. At Paris affairs have displayed little animation, Chilian having been feeble at 77l. to 78l., and Corcoro mineral at 80l. per ton. On the German markets prices have been tolerably firm, but the demand scarcely exceeds at present the requirements of daily consumption. Advices from Holland as to tin are very encouraging; sales have been rather considerable during the last few days, as well at Amsterdam as at Rotterdam, and prices have displayed a tendency to advance; 2000 blocks of Banca have found purchasers at 40½ fl., 2500 blocks at 47 fl., 2200 blocks at 47½ fl., 6300 blocks at 47½ fl., 500 blocks at 47½ fl., and 200 to 300 blocks at 48 fl. In Germany the article has somewhat hardened, in consequence of the favourable advices received from the Dutch markets. Berlin has remained without change, and former rates have been very firm. At Paris prices have been firm, Banca making 86l. Straits 84l., and English 83l. per ton. Lead remains without change. At Hamburg the demand for this metal is now insignificant. The Paris market has displayed little animation, but has, nevertheless, been firmly supported, rough French making 26l. 8s., and Spanish 26l. 12s. per ton. Although transactions in zinc have been rather limited on the Bremen and Hamburg markets, the article has been maintained there with considerable firmness; holders have pressed sales but little, and only a relatively small quantity of goods has been presented on the market. Rough Silesian zinc is quoted firm at Paris, at 22l. 10s. per ton.

Iron has been in little demand in France; nevertheless, prices remain stationary, rolled making 9l.; hammered, 10l. 12s.; and sheets, 1 millimetre in thickness, 10l. 8s. per ton, delivered at St. Dizier. In charcoal-made pig the movement of affairs is scarcely more animated than in iron; a contract has been concluded in Paris article at 4l. 8s. 10d. per ton delivered. It was announced some time since that the Verein-Authe Company, which recently purchased the Bois-du-Tilleul works near Maubeuge, had concluded a contract for 1000 tons of rails, at the rate of 7l. 8s. per ton, delivered with the Northern of France Railway Company. We learn now that the rate per ton is 12l. 12s., instead of 7l. 8s. per ton, and we hasten to rectify the error. The Buly-Grenay Collieries Company is now paying a dividend for the first half of the exercise 1865-6, or 10s. per sixth share. Meetings are announced as follows:—Moselle Colliery Company, Nov. 24, at Paris; Provins of Saint-andré Mines and Foundries Company, Nov. 24, at Paris; Epinae Collieries and Railway Company, Nov. 25, at Paris; Franche-Comté Blast-Furnaces and Forges Company, Nov. 29, at Beaune; Basse-Indre Forges Company, Nov. 29, at Paris; and Pontgibaud Mines Company, Nov. 30, at Paris.

It was recently announced that the coal of the Ruhr district had penetrated to Liege, and that Prussia had sent its coal to Antwerp and Brussels. A still more extraordinary fact has just occurred. One of the important collieries of the Ruhr district is about to send its coal to Paris, a contract having been concluded with a great industrial establishment of Paris. The Ruhr, in thus forwarding its coal into Belgium, and even into France, and so entering into competition with Belgian and English coal, as well as with the coal of the Nord and the Pas-de-Calais, may be said to have created an industrial revolution. The advance in the price of coal in Belgium is certainly calculated to encourage at this moment the exportation of Prussian coal in the same manner that the exaggerated rise in iron in England two years since enabled Belgian works to furnish rails to English railways. Nevertheless, the extremely favourable production conditions of the collieries of the Ruhr, and the principle admitted as the basis of railway tariffs—reduction proportionately to distance—lead to the belief that the outlet opened for Prussian coal will remain free as long as the collieries of Belgium and the North of France are not put in a state to contend against the competition which has suddenly arisen. Taking everything into account, it is calculated that the rate of transport from the colliery, or rather, from Essen (which is a central point), to Paris, will be 14s. 6d. per ton. The conveyance of the Ruhr coal will, although expected, be made by the line from Aix-la-Chapelle to Düsseldorf, as, not, it is believed, the most direct route, it belongs to a railway administration little disposed to grant transport facilities or to accord reductions of tariff. Transports will, it is believed, be directed by the Cologne and Minden lines as far as Cologne, then as far as the frontier of Belgium by the Rhenish line, the charge made being 0.1d. (or rather less than ½d.) per ton per mile. At present the price of coal continues to be firmly supported in Belgium, and stocks are nil, the daily extraction being literally insufficient to meet the orders received. It is hinted, however, that coalowners may experience a disastrous reaction in regard to colliery high prices. Speculation is beginning to be displayed with regard to Fontaine in Belgium. A company is stated to be desirous to purchase lands near Fontaine l'Évêque, under which a rich coal seam is found. The proprietors of the Anderlecht Collieries are disposed to commence working operations on a large scale, and are seeking for additional capital with that object. The Centre of Gilly has acquired the Hain-sur-Sambre Colliery, which is also to be worked on a great

scale: capital is not likely to make default in this case, the Centre of Gilly having purchased its new acquisition out of its profits. The sum paid for the property is understood to have been 44,000l.

As regards miscellaneous items, we may note that a Breslau letter states that the forgers of that district have determined on an advance in the price of rolled iron. The augmentation made was indispensable, in order to bring selling prices into a due relation with cost prices. The advance is made for a month, at the close of which a fresh rise is said to be not improbable. The Frederick William Mines and Ironworks Company will pay Jan. 2, 1867, a dividend for the exercise 1865-6 of 2½ thalers per share. The Hoerde Mines and Ironworks Company will pay, Jan. 2, 1867, a dividend of 10 per cent. for the exercise 1865-6. The Neu-Oege Mines and Ironworks Company will also pay a dividend, Jan. 2, 1867, for the exercise 1865-6. All these three dividends are payable at Cologne. Meetings are announced as follows:—Austrian Company for the Fabrication of Chemical and Metallurgical Products, Nov. 26, at Vienna; Carlsruhe Company for the Construction of Machines, Nov. 28, at Carlsruhe; and Darmstadt Company for the Construction of Machines, Nov. 28, at Darmstadt.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

At GREAT RETALLACK MINE the operations are being vigorously prosecuted. The engine is in course of removal, and will be at work in about two months time. Samples of silver-lead from the two lodes have been assayed, and give the following result:—No. 1 lode: 75 per cent. for lead, and 57 ozs. of silver to the ton. No. 2 lode: 76 per cent. for lead, and 28 ozs. of silver per ton.

THE VAE MINE (Llanidloes).—On Wednesday the ceremony of starting the large water-wheel and crusher, just manufactured by Messrs. Leigh and Gilbert Howell, of the Bagillt Foundry, near Holywell, was celebrated. The wheel, which was christened the Mary Emma, is 50 ft. diameter and 4 ft. high, and was started on the water being turned on, most smoothly, and gave the greatest satisfaction to all present. The putting up of the wheel and crusher was under the direction of Capt. Williams, to whose judgment and ability the greatest praise is due, as well in this as the general management of the mine, and we were happy to hear that the prospects of the company are satisfactory.

SOUTH CONDURROW.—The lode in King's shaft is now 7 ft. wide, and more promising for a course of copper ore than for some time past. The 45 east is also improved, and now producing good saving work. This mine bids fair to become a prize ere long.

EAST PROVIDENCE.—It is gratifying to the shareholders of this mine to see the improved prospects during the past two months. They are now making profits under the able management of Capt. Nancarrow and Kito, and their purser, Thomas Hollow. There can be little doubt that it will before long prove equal to its rich neighbour, Providence. They are now sampling some rich stuff, which leaves a good profit.

PROSPER UNITED.—This extensive mine will, ere long, reward those who have held on their shares during a season of difficulty. The mine has of late so materially improved, that there is now a good monthly profit being made. The purser has informed the shareholders that in a few months they may expect a remunerative dividend, and, judging from the present prospects of the mine, a continuance of dividends may be reasonably anticipated. The returns not being kept up. A very important feature is the improvement in the bottom levels, which speaks volumes for a productive mine as the workings get deeper.

WHEEL AGAR.—The lode in the 140 fm. level has been cut through 8 feet wide, making the lode altogether 12 feet wide, worth upwards of 30l. per fathom. The north lode in the 110 is also looking more promising than at any former period. This will be the prize of 1867.

THE HARWOOD MINE is rapidly and quietly developing itself. A sale of 20 tons of lead ore was made very recently, and it will be observed by the report in our columns that another and still larger parcel is nearly ready. What, however, is more important is the fact that the new vein will shortly commence to add a profit, instead of by the level which has reached it having been all "dead work." By this level the produce of both mines will be extracted at an immense saving of cost, and all the work dressed upon the same floors. The opinion expressed upon this property by Mr. Evan Hopkins should not be overlooked.

THE CHIVERTON MINING DISTRICT has proved wonderfully rich, and is still in its infancy. West Chiverton Mine shares were 10l. in 1863, they are now 60l., and paying 8l. yearly in dividends, being 13½ per cent. upon present outlay; 46,125l. has been given in dividends. Chiverton shares, which were selling at 3½ a few weeks back, and now 8½, will soon double the price. The mine is fast advancing to a dividend state. East Chiverton Mine has greatly improved; shares are well worth looking after at their present low price—25s. to 30s. They have just cut the Chiverton lode, which is very promising. A good lead lode, which is only a matter of a little time, will put East Chiverton shares to 10l. in a few weeks.

SALE OF THE GREAT DEVON AND BEDFORD (COLCHARTON) MINE AND ESTATE.—Mr. Thomas Blake (of Ross) sold, by public auction, on Tuesday, at the Auction Mart, the whole of the above freehold estate, the company being now in course of voluntary winding-up. The auctioneer stated that the property originally cost the company 15,000l., and 12,000l. had been expended in machinery and the necessary workings to develop the mine. The reason for the present sale was that the capital of the company was exhausted, and the liquidator feared that if the present limited operations were kept on there would be but a small balance (if any) to divide amongst the shareholders at the present sale. The lot was started at 2000l., and ultimately knocked down at 2050l. The machinery on the mine cost upwards of 3000l., and the farm produced at the present rental 110l. per annum; 160l. per year had, however, been offered to the auctioneer for a term at the expiration of the present holding.

OUR COAL RESERVES.—Prof. Jevons, referring to the lecture he delivered at Manchester, and published in last week's Journal, writes—"I am reported to have said, and published in last week's Journal, that 'no one was to suppose that they should ever get to that depth' (4000 feet). What I said, however, was that no one could suppose we should work out the coal to that depth in 100 years, or any such period. I believe that fine seams of coal may easily be followed to a greater depth than 4000 feet, the question being entirely one of cost."

THE MINERS' CONFERENCE AT NOTTINGHAM.—On Friday, the Conference considered the effect of rule 31, which is as follows:—"All members reaching the age of 55 years, having paid as members of the association 10 years after this rule was adopted, shall, if unable to work in consequence of old age, receive the sum of 6s. from the funds of the association." An opinion was expressed that the existing funds were not sufficient to meet these expenses, and that the matter should be left to the local societies. On the motion of Mr. Casey, the following was adopted unanimously:—"That the rule remain for consideration during the next six months, and that its adoption be recommended in the whole of the districts." With reference to rule 15, relating to the entrance fees of members, it was resolved that the fee should be in no case less than 2d., but that the amount should be guided by the funds in the hands of the association.—Mr. Jackson said they had 40,000 members in the association, and as that number at 1d. each per month would bring in more than 2000l., he thought 1d. would be sufficient.—Several members said that amount would be insufficient. The auditors' report was presented by Mr. Burt and Mr. Casey, and it appeared that the income of the association during the last five months had amounted to 500l. 16s. 4d.; and, deducting the expenses during the five months, there was a balance in hand of 644l. 10s. 10½d.—Mr. Casey said the Conference was 200l. richer than at their last meeting.—The President said that his late illness was the cause of Scotland being behind in her subscriptions.—The auditors' report was adopted. A vote of thanks was unanimously awarded to the retiring officers, and Mr. McDonald was re-elected President. Mr. Tetlow was then elected vice-president; Mr. Hickard, treasurer; and Mr. P. Casey, secretary. The next Conference will be held at Bolton on May 14, 1867.

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CONTRACT DEPARTMENT, ADMIRALTY, SOMERSET HOUSE.



THE COMMISSIONERS for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, do hereby give notice, that on Tuesday, the 11th December next, at Two o'clock, they will be READY TO RECEIVE SEALED TENDERS for the PURCHASE OF THE ENGINES, &c., of Her Majesty's ship *Furious*, lying in store at Her Majesty's Dockyard at Portsmouth.

Persons wishing to become purchasers must apply to the Superintendent of the Yard for notes of admission to view the engines, &c.

Catalogues and conditions of sale may be had here and at the Yard. No tender will be received after Two o'clock on the day of treaty, nor will any be noticed unless the party attends, or an agent for him duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words "Tender for Engines, &c.," and must also be delivered at the Department of the Storekeeper-General, Admiralty, Somerset House.

By order, ANTONIO BRADY,

Registrar of Contracts and Public Securities.

Contract Department, Admiralty, Somerset House, Nov. 23, 1866.

Contract for Coals for Ascension

CONTRACT DEPARTMENT, ADMIRALTY, SOMERSET HOUSE.



THE COMMISSIONERS for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, do hereby give notice, that on TUESDAY, the 11th December next, at Two o'clock, they will be READY TO TREAT with such persons as may be willing to CONTRACT for SUPPLYING and DELIVERING into store as Ascension TWO THOUSAND FIVE HUNDRED TONS OF COALS, fit for the service of Her Majesty's steam-ships and vessels. One-half of the coals to be shipped by the 31st January, and the remainder by the 28th February, 1867. One-third of the quantity to be shipped in each of the above-mentioned periods to consist of North of England Coals, and two-thirds of South Wales Coals.

A form of the tender and conditions of contract may be seen in the lobby of the Storekeeper-General's Department, Admiralty, Somerset House. No tender will be received after Two o'clock on the day of treaty, nor will any be noticed unless the party attends, or an agent for him duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words "Tender for Coals for Ascension," and must also be delivered at the Department of the Storekeeper-General, Admiralty, Somerset House, accompanied by a letter signed by two responsible persons, engaging to become bound with the person tendering in the sum of £25 per cent. on the value for the due performance of the contract.

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on a great variety of falls.

Memorial to the late Nicholas Wood, Esq.

MEMORIAL TO THE LATE NICHOLAS WOOD, Esq.—At a PUBLIC MEETING of the Subscribers to this Fund, held in Newcastle on the 10th November, 1866, it was unanimously resolved that the proposed MEMORIAL should be in the FORM of a HALL to be ERECTED in SEW-CASTLE, for the use of the Northern Institute of Mining Engineers, to be available for all classes of the Mining Community, under the arrangement of the Council of the Institute. It was also resolved that there should be placed in this hall Busts of Mr. Wood and of others who had been distinguished in this district as Mining or Civil Engineers, &c. It is estimated that the sum required for the purpose will be from £5000 to £8000.

SUBSCRIPTIONS.

Amount previously advertised	£445 14 0
The Hetton Coal Company, Hetton	250 0 0
T. E. Forster, Esq., President of the North of England	100 0 0
Institute of Mining Engineers, Newcastle	100 0 0
Hugh Taylor, sen., Esq., Chairman of the Coal Trade,	100 0 0
Karsdon	100 0 0
Hugh Taylor, jun., Esq., Cliphase Castle	100 0 0
Edward Potter, Esq., Cramlington	100 0 0
John Taylor, Esq., Karsdon	100 0 0
Messrs. James Joicey and Co., Newcastle	100 0 0
Messrs. R. Stephenson and Co., Newcastle	25 0 0
Chas. Wm. Anderson, Esq., Cleaton Park	21 0 0
R. S. Johnson, Esq., Haswell	21 0 0
G. B. Forster, Esq., Backworth	21 0 0
T. G. Hurst, Esq., Backworth	20 0 0
James Hughes, Esq., London	10 0 0
H. S. Stobart, Esq., Winton Tower	10 0 0
F. F. Boyd, Esq., Moor House	10 0 0
W. A. Wooler, Esq., Cold Knott	10 0 0
R. W. Swinburne, Esq., Newcastle	6 0 0
George Cockburn, Esq., Newcastle	6 0 0
David Greig, Esq., Leeds	6 0 0
Andrew Meld, Esq., Newcastle	6 0 0
John Wilson, Esq., Leeds	6 0 0
The Tyne Iron Company, Newcastle	5 0 0
Christian Althausen, Esq., Newcastle	5 0 0
J. J. Atkinson, Esq., Chilton Moor	5 0 0
Mr. George Clark, Sunderland	5 0 0
Mr. George Clarke, jun., Sunderland	5 0 0
Messrs. Armstrong and Foster, Sunderland	5 0 0
S. B. Coxon, Esq., Usworth	5 0 0
Wm. Cockburn, Esq., Hutton House	5 0 0
Messrs. Samuel Tyack and Co., Sunderland	5 0 0
R. P. Philpott, Esq., Newcastle	5 0 0
John Middleton, Esq., Newcastle	5 0 0
Cuth. Berkley, Esq., Marley Hill	5 0 0
Crawford Marley, Esq., Darlington	5 0 0
The Rev. the Vicar of Newcastle	5 0 0
Robert Sharp, Esq. (second subscription), Sunderland	5 0 0
Messrs. R. Richardson and Son, Hull	3 0 0
Henry Watson, Esq., Newcastle	3 0 0
Messrs. R. Marshall and Co., Newcastle	3 0 0
Mr. Thomas Hepplewhite, Lyons	3 0 0
Mr. Robert Elliott, Pensher (second subscription)	2 18 0
William Hunter, Esq., Newcastle	2 2 0
Mr. John Swallow, West Harton	2 2 0
Mr. Michael Hopper, Hetton Colliery	2 2 0
Messrs. Reed and Sons, Newcastle	2 2 0
Wm. Green, jun., Esq., Newcastle	2 2 0
Robert Simpson, Esq., Blaydon	2 2 0
J. B. Simpson, Esq., Blaydon	2 2 0
Mr. J. Fawcett, Pitlington	1 10 0
Frank N. Wardell, Plashetts Colliery, Northumberland	1 10 0
Mr. Joseph Roscamp, Elmore	1 10 0
Mr. Daniel Bland, Merton Moor Cottage	1 10 0
Mr. Stephen Gibson, Merton Moor	1 10 0
Mr. William Minto, Hetton-le-Hole	1 10 0
Mr. George Scott, Ferry Hill	1 10 0
Mr. Robert Clay, Sunderland	1 10 0
Mr. Michael Jobson, Dows	1 10 0
Mr. William Spenser, Gateshead	1 10 0
Mr. George Dixon, Bensham Cottage	1 10 0
Mr. John Corbitt, Bensham	1 10 0
Mr. William Hepplewhite, Lyons	1 10 0
Mr. James Davison, Dalketh	1 10 0
Mr. J. J. Cockburn, Stanhope	1 10 0
Wm. Alexander, Esq., Glasgow	1 10 0
Mr. Wm. Anderson, Chilton Moor	1 10 0
George H. Gooch, Esq., Lintz Colliery	1 10 0
Mr. John Wakefield, Lyons	1 10 0
Mr. William Rennie, Moorsley	0 15 0
Mr. John Hatley, Houghton	0 10 0
Mr. Walker Tate, Elmore	0

THE HOT-AIR ENGINE COMPANY (LIMITED).

Incorporated under the Companies Act, 1862.
Capital £15,000, in 15,000 shares of £10 each. Deposit, £1 per share on application, and £1 per share on allotment.
Subsequent calls not to exceed £2 per share, nor to be made at intervals of less than three months.

Should no allotment be made, the £1 paid on application will be returned.
SECRETARY—James D. Churchill.

TEMPORARY OFFICES,—63, KING WILLIAM STREET, LONDON, E.C.

This company is formed for the purpose of purchasing the patents of the hot-air engine, which is so extensively used in the United States, and for introducing and manufacturing it for general use in Great Britain and Ireland.

The advantages of this invention over the steam-engine are—

1.—There is no boiler; therefore no water required, and space is thereby saved—the power being obtained by the expansion of compressed air, and the gases disengaged by combustion.

2.—The utter impossibility of explosion.

3.—As the fire is enclosed in an air-tight furnace, there is no danger of ignition or explosion, in proof of which insurance companies do not charge increased premiums where these engines are used.

4.—Great economy in the working expenses. No engineer is required. A one-horse power nominal, worked in London, with coals at 30s. per ton, costs, including oil, &c., 6s. per week of 60 working hours, or 1d. per horse power per hour.

5.—No preparation is necessary for its erection, as it stands on its own frame. A one-horse power requires space of about 8 feet square; a common stove pipe, leading into a chimney, is all the draught apparatus required. It is self-contained, simple in construction, and not liable to get out of repair.

Experience shows that the demand for small-power engines is enormous, both at home and in the colonies; for instance, for printing, turning, sawing, pumping, hoisting, ventilators, sewing machinery, &c.

These engines can be used where it would be impossible, dangerous, or unpleasant to have a steam-engine.

The company have made an arrangement to acquire the sole and exclusive right of making, selling, and using hot-air engines constructed under various patents, and all future improvements the vendors may make.

Applications for shares, prospectuses, and any further information, to be made to the Secretary, at the offices, where an order may be obtained to see the machine in full work.

12, Red Lion-court, Fleet-street, London, Aug. 16, 1866.—GENTLEMEN: In reply to your enquiries regarding the 1-horse power hot-air engine, I beg to state that I have had it in constant work for the last nine months driving two lathes, one planing machine, a small circular saw, &c. The cost of working, including oil, &c., amounts to less than 6s. per week, requiring little or no attention, and is perfectly free from all danger—in fact, a boy of 14 years of age, after a few days instruction, is quite competent to take entire charge of it. It affords me great pleasure to state that I am perfectly satisfied with it in every respect.

THOMAS JOHN LAWRENCE.

7, Red Cross-square, Jewin-street, London, August 17, 1866.—DEAR SIR: In reply to your letter, respecting the hot-air engine, I can say that it has worked to my entire satisfaction, driving two double-crown printing machines at a cost of 6s. per week, including the cost of oil. You may with confidence recommend it to anyone, as nothing can equal it for safety and economy; and they only require to be known to be appreciated. A boy fourteen years old attends to mine. Any further information that you may require I shall be happy to give you.

W. G. BUNTING

N.B.—There are one-horse power engines.—J. D. C., Sec.

COLQUHTE SILVER-LEAD MINE (LIMITED).

Callington, Cornwall.
Capital £2000, in fully paid-up shares of £1 each.

10s. to be paid on application, and 10s. on allotment, without further liability.

First issue 2000 shares, of which 1000 only are now available.

The plan of making a small issue of fully paid-up shares, and subsequently increasing their number if additional capital is required, secures for mining and other speculative investments a maximum of advantage, with the least possible risk—first, by admitting adventurers to a very large share on easy terms, in the event of early success; and, secondly, by securing to all absolute immunity from further calls, and this without the necessity of sacrificing existing interest.

These advantages are not secured by the Cost-book System, nor by the arrangements usually adopted.

DIRECTORS—To be elected at the first meeting of shareholders, within fifteen days after allotment.

OFFICES,—53, MOORGATE STREET, LONDON.

Communications hereon may be addressed to the lessee, Colquhite Mine, Callington, or to the undersigned, to whom application for shares should be made on or before Friday, Nov. 30. WILLIAM COLMAN, Secretary pro tem.

THE BRITANNIA SILVER-LEAD MINING COMPANY (LIMITED).

4, ALLHALLOWS CHAMBERS, 49, LOMBARD STREET, LONDON, E.C.

The concession of mining rights over thirty square miles of territory has just been granted to this company by the Emperor of France; one of the mines opened upon is now in an advanced state, and silver-lead ore of first-class quality is being shipped to Swansea, for which prices varying from £17 10s. 6d. to £45 7s. per ton have been received.

The directors are willing to receive applications for a limited number of the new issue of shares, which are of £1 each, payable either in full, or by instalments of 5s. each.

Further particulars relating to the concession and the mines, also specimens of the ores, may be obtained on application to Mr. N. M. MAXWELL, at the offices of the company. Reference is invited to the weekly reports from the mine, which duly appear in the *Mining Journal*.

MESSRS. CARNE AND CARTHEW.

BRITISH AND FOREIGN SHAREDEALERS, FINANCIAL AGENTS, NEGOTIATORS FOR THE SALE OF MINES AND MINING PROPERTY OF EVERY DESCRIPTION.

ST. JUST AND WEST CORNWALL MINING OFFICES, 12, NORTH BUILDINGS, BROAD STREET TERMINUS, E.C.

Messrs. CARNE AND CARTHEW, after business relations for twenty years, have entered into partnership for the general conduct of mining business, which they believe their long experience and knowledge will enable them to transact with satisfaction to their clients.

As Sharedealers they will buy and sell on the usual charges for commission, and having no bias of their own, will ever be ready to advise their correspondents as to the best and most secure investment in the market. Those of their friends who, in the early part of the year followed their counsel have benefited, in many instances, 200 or even 500 per cent., and this, by judicious operations, will always be the case, whilst the unadvised outsider, who listens to the senseless gossip which emanates from irresponsible "mining men," are sure to lose their money.

As Financial Agents, CARNE AND CARTHEW propose to enter on an entirely new field of business. It has long been patent to all who are bona fide adventurers in the great mining industry of this country that the Limited Liability Act, whatever may be its value or its worthlessness for other enterprises, is utterly unfit for mining purposes; for just at the moment that the property is being brought into a paying state the power to make calls becomes exhausted, and the borrowing powers which the company have, under their deed of settlement, can seldom or never be satisfactorily exercised. To supply this great defect in the working of companies so constituted, and thus rescue many valuable concerns from ruin, and their shareholders from serious loss, is an important object in the programme of their business.

The Transfer and Sale of Mines, as at present managed, when offered in London (and there is no other place where a market can be found) is most wretchedly conducted, as every practical man knows who glances at a catalogue. The salesman is ignorant of what he is dealing with, and he cannot convey to his clients a clear perception of the value of the estate, it being to him a sealed book. This important defect CARNE AND CARTHEW, from their great experience, feel they can well supply, and will be happy to negotiate all such sales or transfers, either by private negotiation or public auction.

CARNE AND CARTHEW have adopted the name of the St. Just and West Cornwall Mining Offices, because it has been the scene of their great success, they having paid dividends from more mines in those districts alone than any other firm has throughout the empire, and because those districts are, from their being almost a terra incognita to the London world, least dealt in than the better supported districts of Caradon and Tavistock, although, as they believe, far more deserving public support.

London Agencies for respectable constituted companies conducted.

MINES INSPECTED BY EDUCATED AGENTS OF GREAT EXPERIENCE.

MINING OFFICES, MANCHESTER.

THOMAS MOLYNEUX AND CO., MINE AGENTS AND SHAREBROKERS. Reliable information can be obtained as to purchase and sale of shares.

Offices of the Eilen United Copper and Zinc Mining Company (Limited), and Hazell Grove Silver-Lead Mining Company (Limited). THOMAS MOLYNEUX, Secretary, 25, Princess-street, Manchester.

MANCHESTER, AND WEST END OF LONDON.

MR. W. HANNAM, MINING, SLATE QUARRYING, INSURANCE, AND GENERAL SHAREBROKER.

ROYAL INSURANCE BUILDINGS, KING STREET MANCHESTER; and 21, REGENT STREET, LONDON, S.W.

INSTANTANEOUS COMMUNICATION WITH THE STOCK AND MINING EXCHANGES, avoiding the delay and annoyance of visiting the City to ascertain prices. A Monthly Investment Circular on application.

RAILWAYS AND MINES.

Capitalists who seek safe and profitable investments, free from risk, should act only upon the soundest information. The market prices for the day are for the most part governed by the immediate supply and demand, and the operations of speculators, without reference to the bona fide merits of the property. Railways depend upon the traffic, expenditure, and capital accounts, the probabilities of alliance or competition with neighbouring companies, the creation of new shares, the state of the Money Market as affecting the renewal of debentures, and other considerations founded on data to which those only can have access who give special attention to the subject. Mines afford a wider range of profit than any other public securities. The best are free from debt, have large reserves, and pay dividends monthly varying from £10 to £15 per cent. per annum. Instances frequently occur of young mines rising in value 400 or 500 per cent. But this class of security, more than any other, should be purchased only upon the most reliable information. The undersigned devote special attention to Railways and Mines, afford every information to capitalists, and effect purchases and sales upon the best possible terms. Thirty years' experience in mining pursuits justifies us in offering our advice to the uninitiated in selecting mines for investment.

MESSRS. TREDNICK AND CO.,

ST. MICHAEL'S HOUSE, CORNHILL, LONDON.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the NORTH CHIVERTON MINING COMPANY.—TO BE SOLD, under the direction of the Registrar of the said Court, BY PUBLIC AUCTION, on Tuesday, the 4th day of December next, at Eleven o'clock in the forenoon, at NORTH CHIVERTON MINE, in the parish of Perranzabuloe, within the said Stannaries, in One Lot, the MINE SETT or GRANT of the said company, and the undermentioned MINING MACHINERY, MATERIALS, and EFFECTS, viz.:—30 in. cylinder PUMPING ENGINE, with BOILER 11 tons, and a variety of other materials and effects in general use in mines, which may be inspected at any time prior to the sale, on application to Mr. SAMUEL OSBORNE, in charge thereof.

HODGE, HOCKIN, AND MARRACK, Truro.
(Agents for Tuffnell Southgate, 7, King's Bench Walk, Temple, London).
Dated Registrar's Office, Truro, November 14, 1866.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TRESKERRY MINING COMPANY.—By an order made by his Honour the Vice-Warden of the Stannaries in the above matter, dated the 18th day of Nov. inst., on the petition of Harry Tilly, of Falmouth, within the said Stannaries, a shareholder of the said company, it was ordered that the TRESKERRY MINING COMPANY should be WOUND-UP by the Court, under the provisions of the Companies Act, 1862.

HODGE, HOCKIN, AND MARRACK, Solicitors, Truro.
Dated Truro, November 19, 1866.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the OLD WHEAL NEPTUNE MINING COMPANY (LIMITED).—By an order made by his Honour the Vice-Warden of the Stannaries in the above matter, dated the 10th day of November inst., on the application of William John Rawlings, in the above matter, it was ordered that the OLD WHEAL NEPTUNE MINING COMPANY (LIMITED) should be WOUND-UP by this Court, under the provisions of the Companies Act, 1862.

HODGE, HOCKIN, AND MARRACK, Truro.
(Solicitors for the Petitioner).
Dated Registrar's Office, Truro, 21st November, 1866.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the SOUTH ALFRED CONSOLS MINING COMPANY.—TO BE SOLD, under the direction of the Registrar of the said Court, BY PUBLIC AUCTION, on Tuesday, the 18th day of December next, at Eleven o'clock in the forenoon, at the SOUTH ALFRED CONSOLS MINE, in the parishes of Phillack and Gwinnar, within the said Stannaries, either together or in lots, the MINE SETT or GRANT of the said company, and the undermentioned MINING MACHINERY, MATERIALS, and OTHER EFFECTS, viz.:—45 in. cylinder ENGINE, with BOILER 10 tons, 8 ft. stroke in cylinder, and 7 ft. stroke in shaft; and a variety of materials and effects in general use in mines, which may be inspected at any time on application to Mr. W. W. Moss, in charge thereof.

HODGE, HOCKIN, AND MARRACK, Solicitors, Truro.
Dated Truro, November 21st, 1866.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WENDRON CONSOLS MINING COMPANY.—TO BE SOLD, under the direction of the Registrar of the said Court, BY PUBLIC AUCTION, on Tuesday, the 11th day of December next, at Eleven o'clock in the forenoon, at the WENDRON CONSOLS MINE, in the parish of Wendron, within the said Stannaries, either together or in lots, the MINE SETT or GRANT of the said company, and the undermentioned MINING MACHINERY and MATERIALS, namely:—ONE STEAM ENGINE, 70 in. cylinder, with first piece of rod and woodwork of engine-house; THREE BOILERS 10 tons each; and a variety of other materials and effects in general use in mines, of which further particulars may be had on application to Mr. JOHNS, the officer of the Court in possession.

HODGE, HOCKIN, AND MARRACK, Solicitors, Truro.
Dated Registrar's Office, Truro, November 21st, 1866.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WEST WHEAL VOR MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court was, on the 19th day of November inst., presented to the Vice-Warden of the Stannaries, by William John Rawlings, a creditor and also a contributory of the said company, and that the said petition is directed to be heard before the Vice-Warden, at No. 13, Thurlow-square, Brompton, in the county of Middlesex, on Monday, the 3d day of December next, at Twelve o'clock at noon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, his solicitor, or their agents, of his intention to do so, such notice to be forthwith forwarded to P. P. Smith, Esq., secretary of the Vice-Warden, Truro.

Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same, from the petitioner, his solicitor, or their agents, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 30th day of Nov. inst., and notice thereof must, at the same time, be given to the petitioner, his solicitor, or their agents.

HODGE, HOCKIN, AND MARRACK, Truro, Cornwall
(Solicitors for the Petitioner).

GREGORY, ROWCLIFFES, AND RAWLEY, 1, Bedford-row, London
(Agents of the said Solicitors).

Dated Truro, November 22, 1866.

IN the MATTER of the COMPANIES ACT, 1862, and of the PANT-Y-GLIEN SLATE AND SLAB COMPANY (LIMITED).

TO BE SOLD, BY PRIVATE TENDER, the LEASE (49 years unexpired) of the PANT-Y-GLIEN SLATE AND SLAB QUARRY, ABERGWILLI, CARMARTHENSHIRE. Dead rent, £200 per year, and 1-30th royalty. There are spacious buildings erected for sawing and planing.

Cards to view may be obtained at 4, Allhallows-chambers, 49, Lombard-street, London; and no tender will be received after the 20th day of December. The liquidators do not bind themselves to accept the highest or any offer.

W. CHICHESTER, } Liquidators.
GEORGE RAWLINS, }

Dated this 15th day of November, 1866.

FINAL SALE AT WHEAL HARRIETT MINE, ON WEDNESDAY, NOVEMBER 23, 1866, AT TWO O'CLOCK.

MR. BURGESS, Land and Machinery Valuer, is instructed to SELL, BY PUBLIC AUCTION, at the above mine, all the undermentioned valuable MINE MACHINERY and MATERIALS, viz:—

24 or 42 in. combined ENGINE, 10-ton BOILER, and fittings.
18 in. DRAWING ENGINE, 6 to 7-ton BOILER, and fittings.
250 fms. of very best CAPSTAN CHAIN, can be warranted, having been made specially different sizes by Messrs. Harvey and Co., Hayle.

1 SHEARS, 48 ft. legs, 12 in. square, very good oak caps, 2 6-ft. sheaves. Balance, brass, a complete set of woodwork; two cylinders; first-class capstan, English oak axle, 12 in. span beams, stay pieces to shears and legs; iron air-machine; vice; and anvils.

IN YARD.—Bell wire, screw stocks, three barrows, fire-brick, bucket prongs, bucket forms, smiths' trough, smiths' cupboard, old steel, old brass, new and old iron riddles, new and old shovels, mallets, picks, set of double and treble blocks, 4 winch ropes, chests, 2 sampling iron bucket hammers, iron shafts for whim, spanners, and all the account-house furniture. Excellent miners' dial, complete. Mr. BURGESS invites the attention to this final sale.

Refreshments at One, sale at Two o'clock.

MR. BURGESS (Barncose, Redruth), Land and Machinery Valuer, has FOR SALE, all sizes, PITWORK, CHAIN, and MINE MACHINERY: FOUR 60-in. PUMPING ENGINES; ONE 50-in., TWO 40-in., TWO 34-in., THREE 20-in., TWO 18 in. DRAWING WHIMS; STEAM CAPSTAN; 22 in., 24 in., and 36 in. ROTARY ENGINES; 6 stamps' axle; calciner; sundry tin mine materials; several tons of old brass, &c.

Dated November 21, 1866.

BY MESSRS. NEWBOLD AND OLIVER.

DERBYSHIRE—OAKERTHORPE COAL AND IRONWORKS, near DERBY, with the LEASES of MINERALS from HIS GRACE THE DUKE OF DEVONSHIRE AND RICHARD C. STREILEY, Esq.

MESSRS. NEWBOLD AND OLIVER are honoured by instructions from the Liquidator of the Oakerthorpe Iron and Coal Company (Limited) to SELL, BY AUCTION, at the Midland Hotel, Derby, on Thursday, 29th November, 1866, at Four o'clock, the above important COLLIERIES and IRONWORKS, with the PLANT, &c.

The Works are situated close to the Wingfield Station on the Midland Railway, fourteen miles north of Derby. Trains from the North stop at this station—8-52 A.M., 11-16 A.M., and 4-16 P.M.; from the South, 6-44 A.M., 7-59 A.M., 11-7 A.M., and 2-2 P.M.

Plans, &c., can be inspected at the office of the works; and any information may be obtained from the Liquidator, JOHN HEBLEY, Derby; or Messrs. WOODHOUSE and JEFFCOCK, Mining Engineers, Derby. Printed particulars may be obtained from the abovesigned; the Auctioneers, Derby; or Messrs. MILES, GREGORY, and BOWKILL, Solicitors, Leicester.

An order to inspect the works may be obtained of the Liquidator, or of Messrs. Woodhouse and Jeffcock.

TO BE SOLD, cheap, a PORTABLE ENGINE of 14 horse power, double cylinder, of first-class construction, workmanship, and material. Winding gear to order. SECOND-HAND PORTABLES FOR SALE.

Apply to Messrs. BARNOWS and CARMICHAEL, engineers, Banbury, Oxon.

WEST WHEAL VOR, BREAGE, CORNWALL.

MR. CHARLES THOMAS WILL SELL, BY PUBLIC AUCTION, on Wednesday, the 28th of November, 1866, at One o'clock P.M., at the London Tavern, Bishopsgate-street, London, the MINE SETTS or GRANTS of the WEST WHEAL VOR MINING COMPANY, together with all the MACHINERY and MATERIALS belonging to the said company, in One Lot, subject to such conditions as will be produced at the time of sale.

For further particulars, apply to Mr. H. MURCHISON, 8, Austinfriars, London; to the Agent, on the mine; or to the Auctioneer, 3, Great St. Helen's, London, E.C.

N.B.—This sale has been postponed from the 22d inst., owing to an omission in the first advertisement.

NORTHAMPTONSHIRE, within five miles of the town of Northampton. The COGENHOE ESTATE, comprising several FARMS, WATER CORN MILL, SUNDRY COTTAGES, &c., nearly the whole of the village; PLOTS of BUILDING and ACCOMMODATION LAND, the whole containing together 445 Acres; the MANOR, with extensive rights of Fishing; also the important MINERALS under the Estate, of IRONSTONE, POTTERY CLAY, SILVER and GLASS SAND,—the whole producing a present rental of £1300 per annum.

MESSRS. FAREBROTHER, CLARK, AND CO. are instructed to SELL, BY AUCTION, at the George Hotel, Northampton, on Saturday, December 8th, at One for Two o'clock precisely, in Twenty Lots, the COGENHOE ESTATE, freehold and tithe free, situate about midway between Northampton and Wellingborough, intersected in part by the Peterborough branch of the London and North-Western Railway, and only a quarter of a mile from the Billing station, comprising several FARMS, WATER CORN MILL, the greater portion of the VILLAGE BUILDING and ACCOMMODATION LAND, the whole containing about 445 acres, and producing a rental of £1300 per annum, independent of the undeveloped mineral wealth comprised therein.

Also, the MANOR or LORDSHIP of COGENHOE, with valuable rights of fishing. To capitalists this estate offers a wide field of enterprise, and assures a certain prospect of sound and unlimited trade. Inexhaustible beds of the finest clays, on a hill with white sand and loam, giving a first-class red and white bricks, tiles, drainage pipes, and terra cotta, making a trade which will command the London market, to which there is ready access by railway and canal, at remunerative rates: 10 feet of iron ore extends over more than 200 acres. This ore is now in great request in the iron-producing districts, with all of which this estate is in direct communication. By utilising the white clay and sand above the ore, the latter would be got free of expense. There are large deposits of limestone and gravel ballast. There is an excellent plant on the estate, and a line of rails already laid down, so that operations, either in the brick or iron trade, may be commenced at once.

There is a right of way over several level crossings on the Northampton and Peterboro' line of railway to the navigable river Nene. Holes will be sunk to show the minerals, and also intending purchasers will have permission to make such further borings at their own expense.

Manufactured and raw mineral samples of this estate are to be seen at the offices of Messrs. FAREBROTHER, CLARK, and Co., 5, Lancaster-place, Strand; at Messrs. DAWSON, BRYAN, and DAWSON, solicitors, 33, Bedford-square; and at Messrs. MARKHAM, Northampton, where particulars and plans of the property may be had; also at the place of sale, the "Hind" Wellingborough; the "Royal Hotel," Kettering; and the "George," Market Harborough. The lands will be shown on application to Mr. JAMES SHARMAN, Cogenhoe.

MUNDICS FOR SALE.—FOR SALE, at WHEAL FALMOUTH AND SPERRIES MINE, BALDHU, near TRURO, from SIX HUNDRED to SEVEN HUNDRED TONS MONTHLY of GOOD SULPHURIC MUNDIC, containing about 45 per cent. of sulphur. Also, about ONE HUNDRED AND FIFTY TONS of COPPERY MUNDIC. Parties desirous of contracting for the purchase of the same may have samples by applying to Capt. KITTO, the agent on the mine; or to Mr. JOHN PASCOE, purner, Truro.—Dated November 23, 1866.**LEAD MINE SHARES FOR SALE.**

TO BE SOLD, BY PRIVATE CONTRACT, SEVEN (15ths) SHARES of DOWPOT SYKE MINE, in the manor of Alston, in the county of CUMBERLAND; and TWO (100ths) SHARES of GREUHWIT MINE, also near Alston. The Dowpot Syke Mine is situated about 1½ mile from the town of Alston aforesaid, close to the main road leading to Alston, and in a rich part of the district for lead ore. The sett joins Hudgill Burn, which was the richest mine in Alston Moor, and lies between Holyfield and Gutsell Mines, both of which have been very productive, and paid good dividends. During the last twelve months, after paying all the expenses of working the Dowpot Syke Mine, a good balance has been left in favour of the company.

Further particulars may be known on application to Mr. PEART, mining agent, Alston, Cumberland; or to Mr. FORSTER, solicitor, Brampton, Cumberland.

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TO BE SOLD, BY PRIVATE CONTRACT, all that VALUABLE PROPERTY known as BIRCHGROVE GRAIGOLA COLLIERIES, consisting of about FIVE HUNDRED ACRES of the BEST STEAM COAL (on the Government list), unworked, and situate about five miles from the port of Swansea.

The above collieries comprise two walled shafts, fitted on the newest and most improved principle, with FOUR powerful STEAM-ENGINES (two large, nearly new), with horizontal cylinders; and houses, buildings, workshops (complete), with residences, dwelling-houses, &c. All the eligible extensive contracts and business made over to the purchaser.

This property is intersected by the Swansea Vale Railway for upwards of a mile, and the two collieries communicate therewith by convenient sidings, and are in close proximity to the Great Western Railway.

Also, the LEASE of wharf for shipping at Swansea, including all interest, wagons, trams, &c., of every description necessary, and in perfect order.

Also, the LEASE of about four hundred acres of surface land, in good farming order, with homesteads, stock, &c.

Apply to W. M. HADON, Esq., 31, Fenchurch-street, London; or to Mr. EVAN DANIEL, mining engineer and estate agent, Christiana-street, Swansea.

COAL IN NOVA SCOTIA.

A COAL MINE, situate in CAPE BRETON, NOVA SCOTIA, comprehending an area of one square mile, lying on the sea shore, within sight of the track of all vessels passing through the Straits of Canso, to and from the Gulf and River St. Lawrence. This mining privilege consists of several seams of bituminous coal of excellent quality, overlying each other at various depths, the principal one being 7 feet in thickness, cropping out on the side of a deep ravine 61 feet above water level, with a strike of south 85° west, dipping northerly at an angle of 10°, or 1 to 5½. Twenty-seven acres, containing 250,000 tons of coal, lie above natural drainage, requiring no hoisting machinery whatever. Five and a half millions of tons constitute the complement of this single seam. Three other seams, one of 3 feet, one of 3½ feet, and one about 5 feet, co-exist, with like strikes and dips. A safe and natural harbour, containing 10 acres of water (superficially) from 36 feet to 9 in depth, and partly within the area, may at small expense be rendered navigable. The proprietors of this valuable property are prepared to TREAT FOR THE SALE, or to ACCEPT PROPOSALS FOR FORMING A JOINT-STOCK COMPANY, to work the mine under a special Limited Liability Act of the Legislature of Nova Scotia, already obtained. A very small amount of outlay, from the peculiar position of the property, will render it immediately reproductive. It is among the mines nearest the United States, where the demand for bituminous coal is almost unlimited.

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Particulars of a VALUABLE and EXTENSIVE SLATE AND COPPER PROPERTY FOR IMMEDIATE DISPOSAL BY PRIVATE CONTRACT, situate in NORTH WALES, within about four miles of shipping port, to which a railway, running for nearly two miles parallel to and within a few hundred yards of the estate, will enable the produce to be conveyed at an almost nominal cost. There are upon the property four or five very EXTENSIVE SLATE VEINS and a VALUABLE COPPER MINE.

Three quarries have been opened, and the works in either case brought nearly to completion, several cargoes of excellent slates having been sold, as also a large quantity of very rich copper ore. There are about 800 yards of levels, 100 yards of shafts, about one mile of iron rails laid down, foreman's

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MANUFACTURED BY
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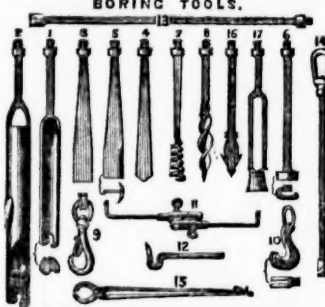
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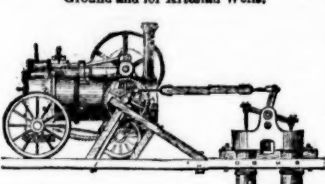
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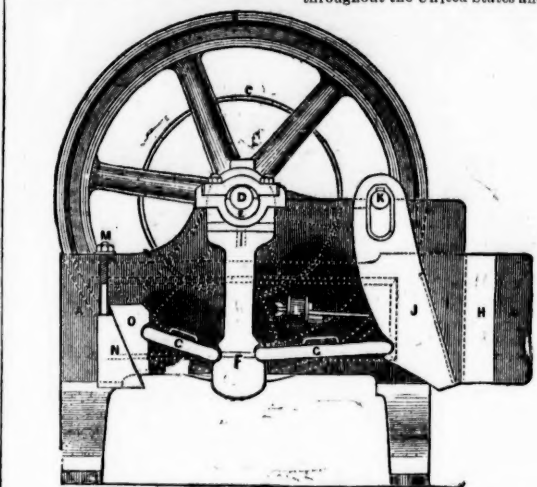
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A. JEFFERY.
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This patent pump is the MOST EFFICIENT in existence for LIFTING ANY QUANTITY OF WATER from ANY DEPTH. One lifting from a depth of 170 ft. may be seen at work daily, on application to the
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BLAKE'S PATENT STONE BREAKER
OR ORE CRUSHING MACHINE,
FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.
It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—



The Parys Mine Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last twelve months, and Captain Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.
For the Parys Mining Company, JAMES WILLIAMS.
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GIFFARD'S PATENT INJECTOR COMPLETELY SUPERSEDED BY
THE NEW PATENT DONKEY STEAM PUMP.

[SPECIFICATION.]

This Pump is constructed on an entirely novel and simple principle, there being only a crank-shaft and fly-wheel of small size, the slide-valve being worked inside the steam chest by means of a steel crank and friction roller, thus dispensing with eccentric, rod, and straps. All the working parts are made of steel, hardened and polished. The cylinder and pump are in one casting, and bored throughout the body of the pump as well as the stuffing-box. The pump-ram is of the best gun-metal, being cast in one piece with the piston and piston-rod, and fitted accurately to the bored body of the pump, thus ensuring a nearly perfect vacuum in pumping. The stuffing-box glands are also of gun-metal polished. The valves and boxes are of the best gun-metal, the valves being of the spherical description, the covers fitted with brass cages, and the joints faced metal to metal. The slide-valve is of hard bell-metal. The steam-chest, with cylinder end, is in one piece, and may be removed without disturbing either steam or exhaust pipes. The whole engine may be taken to pieces and put together under steam in fifteen minutes, without disturbing any pipes whatever.

Size.	Ram.	Stroke.	Approx. h.p.	Approx. gal.	Price of Giffard's Injector.	Price of Donkey Pump.
No.	In.	In.	boiler supplied.	thrown p. hour.	In brass.	In iron.
4	1 1/2	3	15	230	£10 10	£10 10
5	1 3/4	3	22	350	12 12	19 13
6	2	4	30	600	14 14	23 16
7	2 1/4	4	40	700	17 0	27 19
8	2 1/2	5 1/2	55	900	19 10	32 22
9	2 3/4	5 1/2	75	1150	22 10	36 25
10	3	6 1/2	90	1420	25 10	38 28
11	3 1/4	6 1/2	110	1720	28 10	45 31
12	3 1/2	8	120	2000	31 10	50 34

N.B.—Sizes and capacities similar to Giffard's Injector. All guaranteed to work efficiently.

Terms: Nett Cash on Delivery in London.

Giffard's injector will not force water over 120° Fahr., while these pumps possess the great advantage of being able to pump boiling water. Giffard's injector will not draw water over 6 ft. deep, while these pumps draw water 15 ft., and by using one size larger than required for forcing the quantity will draw 30 ft. deep. These pumps begin to work at 15 lbs. per square inch; to work at a lower pressure the next larger size must be used. Sizes up to No. 10 kept in stock. Larger sizes, and special pumps for throwing water into tanks, or as fire-engines, can be made in a few days on application to the undersigned.

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Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1600	Alderley Edge, c. Cheshire	10 0 0	—	—	8 7 8	0 10 0	Aug. 1866
300	Batallack, t. c. St. Just	91 5 0	—	—	488 15 0	0 0 0	May, 1866
10000	British Slate Company	9 0 0	—	—	9 per cent.	—	Sept. 1866
1000	Bronfryd, t. Cardigan	12 0 0	—	—	8 7 0	0 0 0	Aug. 1866
6400	Cashwell, t. Cumberland	2 10 0	—	—	0 1 6	0 1 6	Aug. 1866
916	Cargill, s. t. Newby	15 5 7	—	—	13 15 0	0 0 0	Feb. 1866
867	Cwm Eirin, t. Cardiganshire	7 10 0	30	—	20 15 0	0 0 0	Oct. 1866
128	Cwmystwith, t. Cardiganshire	60 0 0	—	—	167 0 0	0 0 0	Oct. 1866
200	Derwent Mines, s. t. Durham	300 0 0	—	—	1042 0 0	0 0 0	Nov. 1866
1024	Devon Gr. Consols, c. Tavistock	1 0 0	450	—	816 10 0	0 0 0	Oct. 1866
358	Dolcoath, c. t. Camborne	128 15 0	—	—	14 5 0	0 2 6	July, 1866
6144	East Caradon, c. St. Cleer	2 14 6	—	—	136 10 0	0 2 0	Nov. 1866
350	East Caradon, t. Cardiganshire	32 0 0	—	—	387 10 0	0 2 0	Nov. 1866
128	East Pool, t. c. Pool, Illogan	24 5 0	—	—	0 10 0	0 1 6	Jan. 1866
5000	East Rosewarne, c. t. Gwennap	15 15 0	—	—	2 7 0	0 7 6	May, 1866
1906	East Wheal Lovell, t. Wendron	3 9 0	14	—	69 0 0	0 10 0	Oct. 1866
2800	Foxdale, t. Isle of Man	25 0 0	—	—	3 5 0	0 5 0	Feb. 1866
5000	Frank Mills, t. Christow	3 18 6	—	—	5 5 0	0 10 0	Sept. 1866
15000	Great Laxey, t. Isle of Man	4 0 0	19	—	10 10 0	0 10 0	Sept. 1866
8908	Great Wheal Vor, t. c. Helston	40 0 0	17	—	39 0 0	0 1 0	Oct. 1866
1024	Herodsfoot, t. near Liskeard	8 10 0	31	—	0 10 0	0 1 0	Oct. 1866
4000	Hingston Down, c. t. Gwennap	18 15 0	—	—	480 10 0	0 3 0	Sept. 1866
9000	Marke Valley, c. Caradon	10 0 0	—	—	0 13 0	0 3 0	Oct. 1866
3000	Minera Boundary, t. Wrexham	1 0 0	—	—	205 8 0	0 3 0	Nov. 1866
1800	Minera Mining Co. t. Wrexham	25 0 0	—	—	0 6 0	0 2 6	Mar. 1866
40000	Mynydd Iron Ore	3 5 0	—	—	157 10 0	0 5 0	Jan. 1866
600	Pant-y-Glen, s. t. Gwennap	20 0 0	—	—	81 7 0	0 10 0	Oct. 1866
300	Parys Mines, c. Anglesey	60 0 0	—	—	534 10 0	0 5 0	Sept. 1866
512	South Caradon, t. St. Cleer	1 5 0	350	—	0 8 0	0 2 6	Nov. 1866
6000	South Caradon, t. St. Cleer	3 6 0	—	—	15 7 6	0 2 0	Nov. 1866
6000	Tincroft, c. t. Pool, Illogan	9 0 0	2	—	62 0 0	0 1 0	Oct. 1866
3000	W. Chiverton, t. Perranzabuloe	—	60	—	682 0 0	0 1 0	Oct. 1866
400	West Wheal Seton, c. Camborne	47 10 0	137 1/2	—	481 14 0	0 2 0	Oct. 1866
512	Wheal Bassett, c. Illogan	5 2 6	80	—	300 0 0	0 1 0	Mar. 1866
1024	Wheal Friendship, c. Devon	20 0 0	—	—	2 19 0	0 1 6	Mar. 1866
4295	Wheal Killy, t. St. Agnes	5 4 6	—	—	1 0 0	0 10 0	Feb. 1866
2900	Wheal Rose, c. St. Agnes	58 10 0	145	—	231 15 0	0 8 0	Oct. 1866
396	Wheal Seton, c. Camborne	3 17 0	—	—	24 0 0	0 8 0	Oct. 1866
1640	Wheal Trevelyan, s. t. Liskeard	2 10 0	23	—	45 15 0	0 18 0	Oct. 1866
17000	Wicklow, c. t. Wicklow	2 10 0	23	—	—	—	—

BRITISH MINES WITH DIVIDENDS IN ABEYANCE.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1200	Bryn Gwyn, t. Mold	9 0 0	—	—	3 3 6	0 13 6	Aug. 1865
2880	Clifford Amalgamated, c. Gwennap	31 10 0	8	—	25 6 0	0 10 0	June, 1865
1085	Craddock Moor, c. St. Cleer	11 5 0	—	—	7 12 0	0 4 0	June, 1865
6000	East Carn Brea, c. Redruth	3 15 0	—	—	0 5 0	0 5 0	June, 1865
30000	Minera Co. of Ireland, c. t. c.	7 0 0	19	—	19 18 11	0 16 1	July, 1865
6000	West Birch Tor and Vifiter Cons.	1 6 0	—	—	0 13 0	0 2 0	Oct. 1865
1024	Wheal Rose, c. Illogan	1 10 0	—	—	26 14 0	0 5 0	July, 1865
1024	Wheal Mary Ann, t. Menheniot	8 0 0	12	—	59 17 6	0 10 0	Mar. 1865

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
5000	Cape Copper Mining	7 0 0	—	—	2 12 6	0 10 0	April, 1866
21500	East Indian Coal, t. Accutta	1 0 0	—	—	1 5 4	0 2 0	Oct. 1866
15000	Fortuna, t. Spain	2 0 0	—	—	2 9 0	0 1 0	June, 1866
25000	Gen. Mining Assoc., Nova Scotia	20 0 0	—	—	7 1/2 per cent.	—	per annum.
10000	Gonessa, t. Spain	—	—	—	11 6 4	0 5 0	Jan. 1865
5000	Linares, t. Spain	3 0 0	—	—	0 12 0	0 2 0	Aug. 1865
5275	New Wildberg, t. Germany	2 0 0	—	—	10 per cent.	—	Yearly.
10000	Panico, c. t. France	3 0 0	—	—	2 19 8	0 16 8	Dec. 1865
27500	Port Phillip, c. t. France	20 0 0	—	—	0 15 0	0 1 0	July, 1866
10000	Scottish Mining Co., t. c.	1 0 0	—	—	0 1 0	0 9 0	May, 1866
21000	St. John del Rey, Brazil	15 0 0	—	—	68 15 0	0 4 0	June, 1866
40000	Victoria (London) [25000 £1 pd., 25000 12s. 6d. pd.]	—	—	—	0 9 0	0 1 0	June, 1866
10000	West Canada Mining Company	1 0 0	—	—	0 19 6	0 2 6	May, 1866

FOREIGN MINES WITH DIVIDENDS IN ABEYANCE.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
10000	Alten and Quenangen United, c.	4 10 0	—	—	4 5 0	0 15 0	Nov. 1863
20000	Australian, c. South Australia	7 7 6	—	—	0 2 0	0 1 0	June, 1865
2464	Burra Burra, c. South Australia	5 0 0	—	—	325 0 0	0 5 0	Dec. 1865
12000	Cobre Copper Company, c. Cuba	40 10 0	—	—	101 0 0	0 1 0	Jan. 1865
10000	Copiapu Mining Company, Chile	16 0 0	—	—	6 18 0	0 10 0	Nov. 1862
100000	Don Pedro No. del Rey, Brazil	0 14 0	—	—	0 9 0	0 9 0	Dec. 1865
20000	Enslie, c. t. Australia	2 10 0	—	—	1 12 0	0 2 0	Aug. 1864
60000	Kapunda Australian Mining Co.	1 0 0	—	—	0 12 0	0 1 0	June, 1865
10000	Lusitania (Portugal)	3 0 0	—	—	0 9 0	0 3 0	June, 1865
10000	Lusitania and New Granada	1 0 0	—	—	0 9 0	0 1 0	June, 1865
43174	United Mexican, s. Mexico	28 5 0	2	—	2 19 0	0 5 0	Sept. 1864
15000	Vancouver, c. t.	5 0 0	—	—	0 15 0	0 5 0	Nov. 1864
45000	Yudanamutana, c. S. A.	2 0 0	1	—	0 5 0	0 5 0	Aug. 1863

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
35000	Alamillos, t. Spain	2 0 0	—	—	—	—	—
100000	Anglo-Brazilian, g. t.	0 9 0	—	—	—	—	—
40000	Britannia Silver-Lead Mines, France [15750 lbs. pd.]	—	—	—	—	—	—
25000	Capula, s. Mexico	1 12 0	—	—	—	—	—
30000	Chontales, g. s. Nicaragua	3 0 0	—	—	—	—	—
10000	Copiapu Smelting, Chile	10 0 0	—	—	—	—	—
300	Copper Mines Co. of South Australia [150 £100 pd., 150 £70 pd.]	—	—	—	—	—	—
50000	East del Rey, g. Brazil	2 15 0	—	—	—	—	—
15000	El Chico Silver Mining and Reduction Company	4 0 0	—	—	—	—	—
8000	English and Canadian Mining Company	—	—	—	—	—	—
80000	Frontino and Bolivia, g. New Granada	1 10 6	—	—	—	—	—
10000	Great Northern, c. South Australia	1 11 6	—	—	—	—	—
10000	Great Barrier Land Mining, c. New Zealand	5 0 0	—	—	—	—	—
12500	Nerbudda Coal and Iron [6500 £4 pd.]	—	—	—	—	—	—
50000	Nova Scotia Land and Gold	1 15 0	—	—	—	—	—
15000	Orea, c. New Zealand [5000 fully paid]	1 10 0	—	—	—	—	—
4000	Peel River Land and Mineral	100 0 0	—	—	—	—	—
20000	Pestarena, g. t.	—	—	—	—	—	—
23000	Quebrada, c. Venezuela	10 0 0	—	—	—	—	—
10178	Rhenish Consolidated, t. [6000 £5 pd., 4178 £10 pd.]	—	—	—	—	—	—
50000	Rossa Grande, g. Brazil	0 7 6	—	—	—	—	—
15000	San Pedro del Norte, s. Mexico	3 0 0	—	—	—	—	—
10000	San Roque, t. Spain	5 0 0	—	—	—	—	—
1000	Schlossberg Colliery	10 0 0	—	—	—	—	—
50000	Val Antigua, g. t.	0 15 0	—	—	—	—	—
5000	Val Salsam, g. t.	5 10 0	—	—	—	—	—
50000	Valgodemard Mining Company	20 0 0	—	—	—	—	—
50000	Vallancasca, g. Italy	0 15 0	—	—	—	—	—
45000	Victor Emanuel, c. Italy	1 0 0	—	—	—	—	—
20000	Washoe, g. [10000 £5 pd., 10000 £4 pd.]	—	—	—	—	—	—
50000	Worthing, c. South Australia	1 0 0	—	—	—	—	—
7500	Torke Peninsula, South Australia	1 0 0	—	—	—	—	—

BANKS AND FINANCIAL COMPANIES.

Shares.	Banks.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
40000	Alliance	25 0 0	19	—	—	—	—
40000	Australian Mort. Land and Finance	5 0 0	—	—	—	—	—
10000	Bank of Egypt	40 0 0	65	—	—	—	—
10000	Bank of New Zealand	25 0 0	—	—	—	—	—
25000	Bank of Ottago	10 0 0	—	—	—	—	—
25000	Bank of Queensland	25 0 0	—	—	—	—	—
50000	Bank of Victoria, Australia	25 0 0	39	—	—	—	—
8000	Brazilian and Portuguese	10 0 0	—	—	—	—	—
8000	Canada Company	32 10 0	80	—	—	—	—
50000	Canadian Loan and Investment	2 10 0	—	—	—	—	—
40000	Chart. Merc. India, Lond. & China	20 0 0	18	—	—	—	—
40000	City	25 0 0	—	—	—	—	—
20000	Colonial	25 0 0	37	—	—	—	—
40000	Company of African Merchants	3 0 0	3	—	—	—	—
150000	Consolidated Bank	4 0 0	—	—	—	—	—
50000	Credit Foncier and Mobilier of England	8 0 0	—	—	—	—	—
10000	Discount Corporation	20 0 0	—	—	—	—	—
20000	East London	5 0 0	—	—	—	—	—
20000	English, Scottish, & Aust. Chart.	20 0 0	17 1/2	—	—	—	—
20000	English and Swedish	20 0 0	15	—	—	—	—
250000	General Credit and Finance of London	6 0 0	—	—	—	—	—
20000	Imperial Bank	20 0 0	24	—	—	—	—
150000	International Financial Society	8 0 0	—	—	—	—	—
50000	International Land Credit	6 0 0	—	—	—	—	—
4000	London African Trading	10 0 0	7	—	—	—	—
50000	London Chartist Bank of Australia	20 0 0	22 1/2	—	—	—	—
37500	London and County	20 0 0	—	—	—	—	—
40000	London Financial Association	25 0 0	—	—	—	—	—
72000	London Joint-Stock	15 0 0	—	—	—	—	—
5000	London Mercantile Discount	10 0 0	—	—	—	—	—
10000	London and South-Western	20 0 0	18	—	—	—	—
50000	London and Westminster	20 0 0	95	—	—	—	—
50000	Mercantile and Exchange	11 10 0	—	—	—	—	—
17156	Metropolitan and Provincial	20 0 0	11	—	—	—	—
20000	National Rights Association	1 0 0	—	—	—	—	—
10000	National of Liverpool	4 0 0	—	—	—	—	—
10000	Nationalist	10 0 0	13	—	—	—	—
20000	National of Australia	20 0 0	—	—	—	—	—
37500	New South Wales	20 0 0	—	—	—	—	—
40000	Union of Australia	25 0 0	—	—	—	—	—
50000	Union of London	15 0 0	—	—	—	—	—

PROGRESSIVE MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
4000	Ballacorkish, t. of Man, t. c.	1 10 0	—	—	Oct. 1866
3000	Bedford Unit., c. Tavistock	2 6 8	—	—	—
2300	Bedel Aur, t. Holywell	1 2 0	—	—	July, 1866
500	Billins, t. Flint	30 0 0	—	—	Fully pd.
1000	Blacenyffryn, s-l	2 0 0	—	—	Mar. 1866
1248	Boscawell, t. c. St. Just	7 1 0	—	—	Sept. 1866
6000	Bottle Hill, t. Plymouth	1 14 6	—	—	June, 1866
200	Brayford Hill, t. Flint	28 0 0	—	—	June, 1866
5000	Bryn Gwlog, t. Flint	—	—	—	June, 1866
30000	Caldecbeck Fells, t. Cumber.	1 5 0	—	—	Sept. 1866
1000	Camborne Consols, c.	18 10 0	—	—	Feb. 1866
4600	Camborne Vn. & Wh. Fran.	11 8 10	—	—	July, 1866
11000	Capa Cornwall, t. c. [8000 £210s. pd., 3000 £10s. pd.]	—	—	—	Oct. 1866
2000	Caradon & Phoenix Cons.	0 12 0	—	—	April, 1866
914	Caradon Cons., c. St. Cleer	31 3 6	—	—	Nov. 1866
2000	Cara Brea, c. t. Illogan	25 0 0	—	—	Nov. 1866
6000	Cara Carnarvon, c. Cambra.	2 0 0	25s.	1½ 1½	—
5000	Carnarvonshire, t. c.	0 0 0	4½	4½	Fully pd.
4005	Cardigan Cons. [1000 £5 pd., 3005 £4 5s. pd.]	—	—	—	April, 1866
600	Cardiganshire, t.	17 10 0	20	—	Sept. 1866
20000	Caryfort [3200 £2½ pd., 16800 £1½ pd.]	—	—	—	Mar. 1866
60000	Castell Carr Dochan, s	0 8 6	—	—	—
2500	Cefn Cilcen, t. Flint	2 18 0	—	—	Aug. 1866
2000	Central Miners, t.	3 12 6	—	—	Nov. 1866
16000	Central Smallmouth, t.	—	—	—	Nov. 1866
3000	Chiverton, t. Perranz	9 2 6	7½	8 8½	Nov. 1866
3000	Chiverton Moor, t. Perranz	5 18 6	4½	4½ 5	Nov. 1866
16000	Coalatara & Bond [5300 £1 pd., 10700 16s. pd.]	—	—	—	Feb. 1866
256	Codrurrow, c. t. Camborne	76 10 0	—	—	—
5000	Connorree, c. s-l, Wicklow	1 0 0	—	—	Fully pd.
2450	Cook's Kitchen, c. Illogan	19 14 9	7½	6½ 7½	July, 1866
1234	Copper Hill, c. Redruth	12 10 0	—	—	June, 1866
2000	Corush Clay and Tin	1 0 0	—	—	Fully pd.
6000	Cornwall Consols	—	—	—	May, 1866
861	Crane, c. Camborne	52 4 6	—	—	July, 1866
12000	Crelake, c. Tavistock	3 8 0	—	—	July, 1866
5000	Cuddra, t. St. Austell	4 18 6	—	—	June, 1866
25000	Dale, t. North Stafford	1 0 0	4s.	2s. 4s.	Fully pd.
1000	Darren, t. Cardigan	12 4 0	—	—	Oct. 1866
5000	Devon Great Marla	7 0 0	—	—	May, 1866
5000	Devon Wheal Frances, c.	1 4 6	1½	—	Sept. 1866
12800	Devon Wheal Logans, c.	17 0 0	—	—	July, 1866
656	Ding Dong, t. Gulval	48 14 6	—	—	Sept. 1866
20000	Dolfrwynog, s-l	0 15 0	—	—	June, 1866
25000	Dundalk, Ireland, t.	0 12 6	—	—	April, 1866
2000	Dyfnagwyl, t. Wales	13 7 0	—	—	June, 1866
1000	Eaglebrook, t.	17 19 0	—	—	Feb. 1866
512	East Bassett, c. Redruth	29 10 0	23	21 23	July, 1866
1000	East Bassett and Grylls, t.	3 5 0	—	—	Oct. 1866
1000	East Bottle Hill, c. Redruth	1 0 0	—	—	Oct. 1866
4096	East Brookwood, Holne	2 8 8	—	2	July, 1866
2000	East Buller, c. Gwennap	2 0 0	—	—	Mar. 1866
5000	East Chiverton, t. Perranz	2 6 9	—	—	Sept. 1866
2048	E. Falmouth, s-l, Kenwyn	5 0 6	—	—	April, 1866
6000	E. Grenville, c. Camborne	3 3 6	2½	2½ 2½	Nov. 1866
4000	E. Gunnislake & S. Bed. c.	9 0 6	—	—	Aug. 1866
6000	East Holyford, c. Ireland	3 0 0	—	—	Oct. 1866
65	East Jane, s-l, Cardigan	2 17 0	—	—	April, 1866
6000	East Laxey, c. Ireland	—	—	—	Dec. 1866
1000	East Moor, s-l	0 5 0	—	—	Aug. 1866
3386	E. Providence, t. Uny Lel.	4 19 9	—	—	Nov. 1866
5000	E. Tresavan, c. Gwennap	0 10 0	—	—	May, 1866
6000	East Snaefell, t. I. of Man	2 0 0	—	—	Dec. 1866
5610	East Seton, c. Camborne	0 11 0	5½	—	Oct. 1866
9000	E. St. Just, s-l [6000 £3 10s. pd., 3000 £1 10s. pd.]	—	—	—	Nov. 1866
256	East Tolgus, c. Redruth	96 0 0	—	—	April, 1866
1150	E. W. Abar, c. t.	1 0 0	—	—	Sept. 1866
5000	E. W. Russel, t. Tavistock	11 14 0	3½	2½ 3½	Oct. 1866
5000	Ellen Unit., c. s-l, St. Agnes	1 0 0	—	—	Nov. 1866
6000	Fortescue Consols, c.	0 12 6	—	—	—
940	Fowey Con., c. Tywardreath	5 1 6	—	—	June, 1866
6000	Furze Hill Wood Con. Buckl.	1 16 0	—	—	Feb. 1866
1000	Furdon, c. [5000 £1 10s.]	—	—	—	Mar. 1866
1026	Garden, t. Morvah	5 12 9	—	—	Mar. 1866
4096	Gaslinda Unit., t. Wendron	5 7 6	—	—	Feb. 1866
4000	Gawton, c. t. Penryn	1 0 0	3½	—	Feb. 1866
6000	Gen. Min. Co. for Ireland, c.	4 0 0	—	—	—
10000	Glasgow Caradon c. [30000 £1 pd., 10000 10s. pd.]	—	—	—	Sept. 1866
6144	Gonamena, c. St. Cleer	5 14 0	1	—	Aug. 1866
6000	Gothic, s-l, Cardigan	2 10 0	—	—	Fully pd.
486	Grambler and St. Aubyn	70 0 0	5	4½ 5	Nov. 1866
4096	Great Caradon, c. St. Ives	3 9 0	½	—	Aug. 1866
5000	Great East Lovell, t. Helston	1 15 0	—	—	May, 1866
5000	Great Mona, t. Isle of Man	1 10 0	—	—	May, 1866
25000	Great North Devon, c.	5 18 0	3½	—	Oct. 1866
25000	Gr. No. Laxey (Isle of Man)	0 10 0	—	—	Feb. 1866
6000	Great Retallack, s-l, b	1 19 0	½	—	Oct. 1866
6000	Great South Chiverton, s-l	1 9 6	—	—	July, 1866
3000	Gr. So. Tolgus, c. Redruth	0 19 6	%	½ %	Aug. 1866
3000	Great West Chiverton, t.	1 0 0	—	—	June, 1866
3313	Great Whet Badden, t.	2 17 6	—	—	June, 1866
6000	Gr. Wb. Bury, c. t. Breage	16 19 0	—	—	July, 1866
1738	Gr. Wb. Ford, t. Breage	26 12 0	5	4 5	Sept. 1866
119	Great Work, t. Germoe	100 0 0	—	—	—
2500	Grit and Stapely, t.	10 0 0	—	—	July, 1866
6240	Gunnislake (Clitters), t. c.	4 15 0	—	—	Aug. 1866
6000	Gwydyr Pk. Con., Llanrwst	1 12 6	—	—	Aug. 1866
6000	Hallenbeagle, c. Kenwyn	2 9 0	—	—	Aug. 1866
6400	Harwood, t. Durham	0 6 0	%	¾ %	Sept. 1866
6000	Havan, t. Cardigan	4 10 0	—	—	Mar. 1866
6000	Heggin, t.	0 19 0	—	—	Aug. 1866
6000	Lady Bertha, t.	3 19 6	—	—	Oct. 1866
2000	Leawood, c. t. Lydford	3 3 6	—	—	June, 1866
1019	Leeds and St. Aubyn, t. c.	19 13 4	—	—	Mar. 1866
963	Lelant Cons. t. Uny Lelant	35 0 0	—	—	Mar. 1866
160	Levant, c. t. St. Just	10 8 1	—	—	June, 1866
6000	Levant United, St. Just	0 10 0	%	—	—
2000	Lower Park, t. Denbigh	3 11 0	—	—	Jan. 1866
5000	Mace-y-Safn, t.	20 0 0	—	—	Jan. 1866
6000	Maiden, t. Westwistwell	—	—	—	Aug. 1866
5000	Merilyn, t. Flint	3 15 6	—	—	Jan. 1866
5000	Minera Western Boundry	0 2 6	—	—	Sept. 1866
14976	Molland, c. South Moulton	3 13 0	—	—	Aug. 1866
6040	Mount Pleasant, t. Mold	4 0 0	—	—	—
1924	Nanglies, t. c. Kea	26 5 0	16	14 16	Oct. 1866
6000	Nanteos, t. Cardigan	1 0 0	—	—	Fully pd.
512	Nant Miners, t.	6 10 0	—	—	Jan. 1866
250	Nanty Mines, t. Mongom.	2 0 0	—	—	Aug. 1866
6000	North Clifford, c. Gwennap	2 0 0	—	—	Mar. 1866
5000	New Cornish [12000 £1 pd., 12000 15s. pd.]	—	—	—	Sept. 1866
5340	N. Crow Hill, t. St. Stephen	3 1 0	—	—	Aug. 1866
5400	New E. Russell, c. Tavistock	0 10 6	—	—	Sept. 1866
5400	Nether Hearth, t. Dufton	1 0 0	—	—	May, 1866
5000	New Hendra, t. c. Breage	14 11 0	—	—	Mar. 1866
5740	New Pembroke, t. c.	1 0 6	—	—	Nov. 1866
5745	New Treleigh, c. Redruth	4 8 0	—	—	May, 1866
950	New Trevelan, t. Wendron	50 0 0	—	—	May, 1866
479	Newton, t. Breage	50 0 0	—	—	—
396	New Wheal Lovell, t.	1 9 0	—	—	Aug. 1866
4000	New Wh. Seton, c. Cambra.	53 15 0	40	30 35	Sept. 1866
2000	New Wheal Towan, c. t.	15 0 0	—	—	July, 1866
6000	North Devon, s-l	0 16 0	—	—	July, 1866
6000	No. Dolcoath, c. Camborne	4 0 0	—	—	Oct. 1866
9000	North Downs, c. Redruth	4 11 4	—	—	Aug. 1866
361	No. Grambler, c. Redruth	6 9 0	—	—	Aug. 1866
6000	N. Hallenbeagle [6000 £1 pd., 8000 6d. pd.]	—	—	—	July, 1866
6000	North Jane, c. t. Kenz	0 6 6	—	—	Sept. 1866
6000	North Levant, t. c. St. Just	10 8 0	—	—	Sept. 1866
6000	Nth. Miners, t. Wrexham	1 0 0	—	—	Fully pd.
6000	N. Phoenix, c. Linkinghorne	4 4 0	—	—	May, 1866
4000	North Pool, c. Illogan	4 8 6	—	—	June, 1866
700	No. Roskear, c. Camborne	1 0 0	—	3 4	Nov. 1866
6000	No. Shepherds, t. Newlyn	6 0 0	—	—	July, 1866
936	No. Treaskerby, c. St. Agnes	1 0 0	¾	2½ ¾	—
6000	North Wheal, c. St. Helen	1 0 0	—	—	April, 1866
4140	North Wheal Crofty, c. t.	31 12 8	2½	1¾ 9	July, 1866
6000	N. Wh. Borel, Smp. S. Gwyn	4 6 5	—	—	Feb. 1866
228	Okel Tor, c. Calstock	2 7 4	—	—	Aug. 1866
6000	Old Gunnislake, c. Calstock	2 10 0	—	—	Aug. 1866
000	Orsedd, t. Flintshire	0 8 0	—	—	—
400	Par Consols, c. St. Blazey	2 2 0	—	—	Nov. 1866
000	Par and St. Blazey Cons. t.	1 18 9	—	—	—
465	Pen-an-drea, t. Redruth	5 16 0	—	—	July, 1866
6000	Penandean Cons. t. St. Just	—	—	—	Oct. 1866
6000	Penhale Wheal Vor, t. c.	2 15 0	—	—	Oct. 1866
6000	Penhalls, t. St. Agnes	3 0 0	—	—	May, 1866
6000	Penhale and Lomax, s-l	1 10 0	—	—	Oct. 1866
512	Penhall Moor, s-l	9 10 0	—	—	Sept. 1866
000	Penralt, s-l, Merioneth	2 7 0	—	—	Feb. 1866
290	Pentre Lygan, s-l	30 0 0	—	—	May, 1866
772	Poberro, t. St. Agnes	15 0 0	—	—	—
612	Pobreen, t. St. Agnes	8 0 0	—	—	Aug. 1866
000	Prince Arthur Consols	2 0 0	—	—	Fully pd.
800	Prince of Wales, t. Calstock	0 11 6	27s.	25s. 27s.	Nov. 1866
000	Prosper Un. t. c. St. Hilary	8 14 0	—	—	July, 1866